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INTERNATIONAL AND NATIONAL STANDARDS ON DIMENSIONAL COORDINATION, MODULAR COORDINATION, TOLERANCES AND JOINTS IN BUILDING

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INTERNATIONAL AND NATIONAL STANDARDS ON DIMENSIONAL COORDINATION, MODULAR COORDINATION, TOLERANCES AND JOINTS IN BUILDING

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ABSTRACT

This Interim Report lists international, regional (multi-national), and national standards dealing with the principles and practical application of modular and dimensional coordination in building, including joints and tolerances.

The document shows the widespread adoption of the international building module (M), of 100 mm, as a basis for dimensional standardization in building design, production and construction. The listing comprises a total of 26 international and regional standards (ISO, COPANT, ICAITI), and well over 500 foreign national standards. Where available, brief summaries of contents have been included, as well as titles or subtitles in English. Appendixes are included to illustrate international cooperation on the subject, and include a multi-lingual vocabulary for twenty of the key terms used in modular coordination.

The main purpose of the report is to assist the U.S. building and construction community with information on international precedent and thus facilitate decisionmaking relative to standards for dimensional (modular) coordination in building. The document may also aid exporters of building products and/or technical services.

The Interim Report will be submitted to foreign national standards bodies for review and amplification in those areas where incomplete information is available; and a revised version will be issued.

Key words: Building module; dimensional coordination; metric design and construction; modular coordination; standards.

Acknowledgements

Information that has contributed to this Report was obtained from a number of sources, with suitable acknowledgements provided throughout the document.

The principal information sources were:

1. Publications of the International Organization for Standardization [ISO], including

   a. ISO MEMENTO 1978
      (Information on member bodies of ISO, including titles and scope of work of relevant Technical Divisions, Technical Committees, Subcommittees and Working Groups)

   b. ISO CATALOGUE 1978 and Supplements 1 to 3
      (Listing of ISO Standards and Recommendations including designations, number of pages, and titles)

   c. PARTICIPATION IN ISO COMMITTEES
      (Tabular listing of national membership and participation in ISO Technical Divisions and Technical Committees)

   d. ISO BULLETINS
      (Relevant information on ISO activities and changes in membership)

2. The National Bureau of Standards [NBS] Collection of Standards

   The collection of the NBS Standards Information Service in the National Engineering Laboratory, Office of Standards Information, Analysis and Development, includes over 250,000 standards, specifications, test methods, codes, and recommended practices issued by U.S., foreign national, and international standardizing bodies.

   (A large number of the standards listed in this document have been accessed and examined directly)

3. Standards Catalogs, Yearbooks, or Lists issued by foreign national standardizing bodies

   (Where such documents are referenced, the latest available year of issue is indicated)

4. Information obtained during a visit to the Standards Library of the British Standards Institution [BSI], London, England, in January 1979, to obtain data not available at the National Bureau of Standards.

Some useful comparative information on the worldwide status, in 1972, of modular coordination standards (international organizations and 34 national standards bodies) is contained in a document entitled: "Modulordnung, Toleranzen, Fugen und Verbindungen: Teil III - Weltweite Liste der Normen," (Modular co-ordination, tolerances, joints and jointing: Part III - Worldwide listing of standards); Hochschule für Angewandte Kunst, Wien (Vienna), 1972; 14 pages.
The research project was sponsored by the Bundesministerium fur Raumordnung, Bauwesen und Städtebau, Bonn, Bundesrepublik Deutschland (Federal Ministry of Housing, Building and Planning, Bonn, Germany); compiled by Dr. Heidrun Bauer and Dipl. Ing. Heiner Fürst, Wien; and coordinated by the Fachnormenausschuß Bauwesen, Deutsches Institut für Normung [DIN] e.V., Berlin.

PREFACE

The need for an agreed system of dimensional coordination in building has been recognized in all countries where the technical development of the building industry has reached a certain level of mechanization, irrespective of the country's economic, social or technical policies in other fields. The systematic selection of coordinating dimensions derived from a basic module becomes the generally accepted means for the coordination of prefabricated components and site-produced elements and, simultaneously, the rationalization of the range of component sizes.

It has been recognized that some aspects of modern building technology in different countries are tending to converge as greater industrialization is introduced into the building process. A popular area of convergence is that encompassing building dimensions and product sizes. Therefore, much could be gained by reaching international agreements on common approaches to dimensional coordination, based on a generally agreed building module, as well as selected preferred multiples of such a module. During the past 30 years, there has been significant international collaboration in the development of concepts and standards for dimensional/modular coordination.

The basic module of 100 mm, which in international standards is also represented by the symbol 'M', has emerged as the universally preferred basic unit of size, and has been given greater weight by its endorsement during the conversion to metric units in English-speaking countries. It generally has been found in these countries that the change to metric dimensional coordination in conjunction with the change to SI is what really makes the conversion effort worthwhile in the construction community.

The ideas that have led to dimensional coordination in building were pioneered in the United States. The first standards dealing with the coordination of dimensions, based on the 4" building module, were issued in 1945. The impending change to SI in the U.S. offers the building community the great opportunity to combine the dimensional coordination experience at the national and international level with the conversion process. The fact that the U.S. is the last major nation to adopt the metric system gives it the unique chance to develop up-to-date, simple, and internationally compatible standards for dimensional coordination in building.

As a first step in this process, it is desirable to assess the extent of international, regional (multi-national), and national standardization in this subject area around the world. This document is intended to provide a reference base listing standards on dimensional/modular coordination, derived product standards showing coordinating sizes, and drawing practice standards which include techniques of communication in dimensional coordination.

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SUMMARY OF FINDINGS

During the detailed examination of international, regional, and a large number of national standards dealing with modular or dimensional coordination in building, including joints and tolerances, a number of findings were made that provide some useful guidelines for the development of U.S. standards and reference documents on dimensional coordination in metric units. These key findings are:

1. The principles of modular or dimensional coordination in building, based on the internationally agreed building module of 100 mm and selected multiples, can be found in the national standards of 52 countries for which data were available.

2. The distinctions between the terms "modular coordination" and "dimensional coordination" in building have been obscured. In general, dimensional coordination comprises a wider field of application of dimensional control and it includes functional spaces, coordinating sizes for building components and elements, joints, tolerances and fits, and limits of size. In dimensional coordination, the coordinating or controlling planes are determined by functional considerations and may or may not coincide with a modular grid. The great majority of national standards, as well as international standards, exhibit a preference for the term "modular coordination."

3. The effect of ISO recommendations (issued since 1969) and ISO standards (issued since 1973) has been significant. The full or near-complete adoption of material from ISO standards in many national standards--especially in the standards of developing nations--is evidence of greater worldwide convergence in dimensional factors relating to building technology. This effect is likely to continue, so that national standards that were issued prior to ISO standards can be expected to be amended and updated to take into account international developments when they are next reviewed.

4. Modular and dimensional coordination standards cover five broad areas:
   a. fundamental principles, including definitions, and guidelines for application in design, production and construction;
   b. space standards based on preferred (modular) dimensions;
   c. product and component standards based on preferred (modular) sizes;
   d. application standards dealing with joints, production/construction tolerances and fits, and limits of size; and,
   e. drawing practice.

5. While there is broad agreement on the basic principles that underlie modular coordination in design and its practical application in production and construction, the standards of individual countries show some degree of divergence in dimensional preferences for controlling dimensions for floor-to-floor heights (story heights) and floor-to-ceiling heights (room heights). At the international level, a proposed ISO standard on "Multimodules for vertical co-ordinating dimensions" (proposed ISO 2849) reached print proof stage in 1973, but was never issued. Three countries expressed disapproval on technical grounds, and the U.S. did not register a vote.

6. Some national standards on modular or dimensional coordination exemplify special approaches or modifications of ISO recommendations that are noteworthy.

   Britain, for example, has based building dimensions and sizes on a first preference dimension of 300 mm, rather than 100 mm (second preference), and has avoided the use of the term modular coordination until recently. The first standard with the term modular coordination in the title is BS 5578: Part 3:1978, "Modular coordination: Specification for coordinating dimensions for stairs and stair openings," which agrees in full with ISO Standard 3881. Germany, for many years, was a proponent of the octametric module (125 mm) in building applications, but is now transferring to a preference for the international building module of 100 mm. Many product standards are still influenced by the earlier octametric preferences.

   The Netherlands has taken a novel and different approach to coordination by suggesting that position coordination is a key factor in building design and construction, and the Netherlands Standard 2880-1977 illustrates a coordinating system based on tartan grids (band grids) for the rigorous positioning of element groups in building. The merits of this specific approach to planning and building remain to be seen.

7. The most comprehensive application of modular concepts is evident in the building standards of Scandinavian countries, where modular dimensions have become an integral part of building and building products geometry. Sweden leads the field with a total of 70 standards issued during the past 10 years which deal with the principles and practical application of modular coordination.

8. Recent national standards on modular or dimensional coordination exhibit a drift away from the use of the symbol M to denote the building module, and

nearly all of these standards favor dimensions expressed in millimeters (mm) for direct application in practice.

In many foreign national standards, recent revisions indicate a growing preference for the use of millimeters (mm) in building and building product specifications and drawings, thus replacing earlier references to a basic building module of 10 centimeters (cm) or 1 decimeter (dm) with references to a basic module of 100 mm.

9. In some countries, national standards for modular or dimensional coordination in building are emphasized further by way of reference in national building regulations or codes, or by way of mandatory application of such standards in governmental building projects or building projects funded with public funds.

10. All nations that have recently changed from a measurement system based on English units to metric (SI) units, have combined this change with a move to a comprehensive system of dimensional coordination in building, based on the 100 mm basic module--except Britain, where this dimension is a second preference to a 300 mm basic size.

    Because of the many similarities in building technology, Canada provides the most interesting precedent in its approach to metric dimensional coordination in building, and an in-depth study of the proposals is contained in the Canadian Series of Standards for "Metric Dimensional Coordination in Building," CAN3-A.31.M-75.

Background

This publication shows that standards on dimensional or modular coordination[1] in building, based on the internationally agreed 100 mm module[2], form an integral part of the technical data bank for construction in most countries. In some countries, the application of such standards is mandated in the national building regulations.

International standards and recommendations dealing with dimensional and modular coordination in building have been developed under the auspices of the International Organization for Standardization [ISO], and published since 1969.[3] This work in ISO falls under the jurisdiction of Technical Committee [TC] 59, Building Construction, and its various Subcommittees [SC] and Working Groups [WG].[4] At present, TC 59 comprises 53 member nations, 30 of which are actively participating in the work.[5] Many member nations have adopted the ISO standards on dimensional and modular coordination in part or in full, have referenced them in their recent standards, or are generally in accordance with the content of the ISO standards.[6] In addition to ISO, there are various regional and sub-regional standards groups working on unified recommendations for dimensional or modular coordination among their member countries.

Dimensional coordination in building has also been the subject of a number of studies and reports sponsored by the United Nations, and forms part of the policy statement of the United Nations - Economic Commission for Europe [UN/ECE] project on the harmonization of building regulations among the 34 member governments.[7] Most of the development work on international standards on the subject is now carried out within Working Commission W-24, Dimensional and Modular Coordination, of the International Council for Building Research Studies and Documentation [CIB].

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1 In recent years, the distinction between "dimensional" and "modular" coordination has become obscured. In general, dimensional coordination can be interpreted as a comprehensive approach to the coordination of building geometry and building products through common dimensional preferences, including tolerances, limits and fits, and joints. "Modular coordination" is defined in ISO Standard 1791-1973 as "dimensional coordination based on the 100 mm module."

2 In some countries, the basic module is referred to as 10 cm or 1 dm module, and/or associated with the symbol M. The use of millimeters eliminates the need for decimal or modular fractions.

3 ISO standards on modular coordination are listed and abstracted in Part 1 of this publication.

4 A complete list of subcommittees and working groups comprising ISO TC 59 is shown in Appendix 1.

5 A complete list participating nations is shown in Appendix 2.

6 A matrix showing the adoption or referencing of ISO standards on modular coordination in national standards has been developed and is included in Part 9 of this publication.

7 The policy states, inter alia: "to promote the uniform adoption and use of a fully developed system of dimensional coordination."

Purpose of the Document

The principal purpose of this publication is to develop a comprehensive and up-to-date listing of all international, multi-national, as well as significant national standards on the subject of dimensional/modular coordination in building and practical application to preferred dimensions of components and assemblies used in dimensionally coordinated building.

The listing is also intended to identify, with the assistance of national standards bodies, to what extent ISO standards are followed or referenced in national standards and so provide an indication of international harmonization in this subject area. It is recognized that, for historical or technological reasons, some nations have developed special approaches to dimensional/modular coordination, and/or altered the selection of preferred dimensions and sizes for use in their particular industrial environment. It is planned to provide explanations for such divergences wherever possible.

The document may be useful to ISO TC 59 in the technical review and periodic revision of existing standards, required under the general rules of ISO every five years. Similarly, it may assist national standards organizations in the revision and updating of dimensional/modular coordination standards dating from the pre-ISO standards era.

Another major purpose of the document is to assist the U.S. construction community in the development of national standards for dimensional coordination in building, based on the international building module of 100 mm, which has already received general endorsement by groups concerned with metric planning and metric standards development. An awareness of international and foreign national standards on dimensional coordination in building should make it possible to develop U.S. standards in harmony with international precedent and so to further opportunities for U.S. building products and equipment, and design and construction services in other countries.

The following groups are targeted as users of this document: standards writers and standardization committees; design professionals, contractors, and building materials or systems manufacturers with international work projects; research and development groups concerned with dimensional aspects in building; and lecturers or instructors in dimensionally coordinated building technology.

Structure of the Document

The document is structured into ten parts. Parts 1 to 8 provide listings of international, regional and sub-regional, and national standards dealing with dimensional/modular coordination, dimensional standards for building elements, assemblies and components including tolerances, fits and joints, and references on building drawing practice standards that include drawing techniques for use with dimensional coordination. Part 9 illustrates a matrix designed to show the degree of adoption or referencing of ISO standards on modular coordination in national standards. Part 10 provides a multilingual glossary of terms for use with dimensional coordination.

Summary of Contents

Part 1 contains a listing and abstracts of international standards dealing with modular coordination and associated subjects prepared within Technical Committee [TC] 59, Building Construction, of the International Organization for Standardization [ISO]. ISO standards are issued in English and French.

Part 2 contains a listing of regional and sub-regional standards dealing with modular coordination in building, issued by:

2.1 COPANT [Comisión Panamericana de Normas Técnicas]

2.2 ICAITI [Instituto Centro Americano de Investigación y Tecnología Industrial]

Cooperative efforts in the preparation of identical or similar standards on modular coordination also have been made by the Scandinavian countries Denmark, Finland, Norway and Sweden.

Part 3 contains a listing of national standards dealing with dimensional or modular coordination in building and associated subjects, issued in the English language. Where available, abstracts of the content have been included. Standards from the following nations are listed:

3.1 AUSTRALIA [Standards Association of Australia]
3.2 BRITAIN [British Standards Institution]
3.3 CANADA [Canadian Standards Association]
3.4 CYPRUS [Cyprus Organization for Standards and Control of Quality]
3.5 INDIA [Indian Standards Institution]
3.6 Republic of IRELAND [Institute for Industrial Research & Standards]
3.7 JAMAICA [Jamaican Bureau of Standards]
3.8 MALAYSIA [Standards and Industrial Research Institute of Malaysia]
3.9 NEW ZEALAND [Standards Association of New Zealand]
3.10 NIGERIA [Nigerian Standards Organization]

3.11 RHODESIA [Standards Association of Central Africa]

3.12 SINGAPORE [Singapore Institute of Standards and Industrial Research]

3 13 SOUTH AFRICA [South African Bureau of Standards]

3.14 SRI LANKA [Bureau of Ceylon Standards]

3.15 ZAMBIA [Zambian Standards Institute]

No information, or incomplete information, was available from the following countries: Bangladesh, Ghana, Hong Kong, Ivory Coast, Kenya, and Pakistan.

Part 4 contains a listing of national standards on modular coordination issued in Latin American countries, issued in the Spanish language (and in Portuguese in the case of Brazil). Some of the standards listed are direct duplicates of the regional standards published by COPANT [Part 2.1]. The Central American countries Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua, use standards issued by ICAITI [Part 2.2].

Standards from the following nations are listed:

4.1 ARGENTINA [Instituto Argentino de Racionalización de Materiales]

4.2 BRAZIL [Associação Brasileira de Normas Técnicas]

4.3 CHILE [Instituto Nacional de Normalización]

4.4 COLOMBIA [Instituto Colombiano de Normas Técnicas]

4.5 MEXICO [Direccion General de Normas]

4.6 PERU [Instituto de Investigación Tecnológica Industrial y de Normas Técnicas]

4.7 URUGUAY [Instituto Uruguayo de Normas Técnicas]

4.8 VENEZUELA [Comisión Venezolana de Normas Industriales]

No information, or incomplete information, was available from the following countries: Bolivia, Cuba, Ecuador, and Paraguay.

Part 5 contains a listing of national standards on modular coordination and associated subjects from Western European countries, issued in languages other than English but, in most instances, with English subtitles.

Standards from the following nations are listed:

5.1 AUSTRIA [Österreichisches Normungsinstitut]

5.2 BELGIUM [Institut Belge de Normalisation]

5.3 DENMARK [Dansk Standardiseringsraad]

5.4 FINLAND [Suomen Standardisoimisliitto r.y.]

5.5 FRANCE [Association Française de Normalisation]

5.6 Federal Republic of GERMANY [Deutsches Institut für Normung]

5.7 GREECE [Hellenic Organization for Standardization]

5.8 ITALY [Ente Nazionale Italiano di Unificazione]

5.9 NETHERLANDS [Nederlands Normalisatie-instituut]

5.10 NORWAY [Norges Standardis rungsforbund]

5.11 PORTUGAL [Repartição de Normalização]

5.12 SPAIN [Instituto Nacional de Racionalización y Normalización]

5.13 SWEDEN [Standardiseringskommissionen i Sverige]

5.14 SWITZERLAND [Schweizerische Normen-Vereinigung]

5.15 TURKEY [Türk Standardlari Enstitüsü]

No information was available on standards adopted in Luxembourg.

Part 6 contains a listing of national standards on modular coordination and associated subjects issued in Eastern European countries, most of which have collaborated on dimensional coordination standards through the Permanent Commission on Building of the Council for Mutual Economic Aid [CMEA].

Standards from the following nations are listed:

6.1 BULGARIA

6.2 CZECHOSLOWAKIA

6.3 GERMAN DEMOCRATIC REPUBLIC

6.4 HUNGARY

6.5 POLAND

6.6 ROMANIA

6.7 U.S.S.R [Incomplete Listing]

6.8 YUGOSLAVIA

In the absence of English translations or subtitles, these listings may be incomplete. No information was available for Albania.

Part 7 contains a listing of national standards on modular or dimensional coordination issued in other countries not included in Parts 3 to 6. In some instances, English translations or subtitles are available, as indicated. Standards from the following nations are listed:

7.1 IRAQ [Iraqui Organization for Standards]

7.2 ISRAEL [Standards Institution of Israel]
English translations are available.

7.3 JAPAN [Japanese Industrial Standards Committee]
Some English translations are available, as indicated.

7.4 Republic of KOREA [Korean Bureau of Standards]

7.5 TAIWAN [National Bureau of Standards]

7.6 THAILAND [Thai National Standards Institute]
Some English translations are available, as indicated.

No information, or incomplete information, was available from other countries affiliated with ISO, including: Algeria, Peoples Republic of China, Egypt, Ethiopia, Indonesia, Iran, Democratic Peoples Republic of Korea, Lebanon, Libyan Arab Jamahiriya, Morocco, Phillipines, Saudi Arabia, Sudan, and the Socialist Republic of Viet Nam.

Part 8 provides a listing of national standards on dimensional coordination in building issued in the United States. This listing has been included for reference purposes only, as all dimensions relate to U.S. customary units and the use of the 4" (101.6 mm) module.
However, ANSI/ASTM E577-76, "Standard for Dimensional Coordination of Rectilinear Building Parts and Systems," which introduced the concept of a basic incremental dimension (U) in lieu of the module (M), contains the following note: "For dimensional coordination in SI units, the basic incremental dimension, U, shall have the value of 100 mm; for dimensional coordination in U.S. customary units, the basic incremental dimension, U, shall have the value of 4 in."

Part 9 provides a matrix designed to indicate the degree of acceptance of key ISO standards on modular coordination, listed in Part 1, in various countries, the extent of referencing of ISO standards in national standards, and the extent of harmony with recommendations in ISO standards where these are neither accepted in full or in part, or referenced.
The matrix also shows which nations have expressed their approval or disapproval [on technical grounds] of the ISO standards, as listed in the respective forewords.

Part 10 discusses vocabularies (glossaries of terms) for modular coordination in building, and provides references to multi-lingual standards or vocabularies issued by various countries. This comparison has been extended in Appendix 4, a multi-lingual vocabulary of 20 key terms.

International Organization for Standardization [ISO]
Central Secretariat
1, rue de Varembé
Case postale 56
CH-1221 Genève 20
Switzerland/Suisse

International Standards and Recommendations issued by ISO Technical Committee 59, Building construction. All documents are A4 size.

[Information source: ISO Catalogue 1978 and Supplements]

ISO 1006-1973 MODULAR CO-ORDINATION--BASIC MODULE (2 pages)

Fixes the definition, symbol and value of the basic module for use in the construction of buildings of all types built according to the principles of modular coördination.
The basic module has the international standardized value of 100 mm, and may be represented by the symbol M.

ISO 1040-1973 MODULAR CO-ORDINATION--MULTIMODULES FOR HORIZONTAL CO-ORDINATING DIMENSIONS (1 page)

Fixes the value of several multimodules for horizontal co-ordinating dimensions used in modular co-ordination. The values of these multimodules are: 3M (300 mm); 6M (600 mm); 12M (1200 mm); [15M (1500 mm)]; 30M (3000 mm); and, 60M (6000 mm). The multimodules 3M and 6M are intended mainly for housing, and 15M signifies a size of limited applicability which will only appear in specific national standards.

ISO 1789-1973 MODULAR CO-ORDINATION--STOREY HEIGHTS AND ROOM HEIGHTS FOR RESIDENTIAL BUILDINGS (1 page)

Fixes sizes for modular heights of storeys (floor-to-floor heights) and room heights (floor-to-ceiling heights) for residential buildings. Recommended controlling dimensions for storey heights are: 26M (2600 mm); 27M (2700 mm); 28M (2800 mm); and, 30M (3000 mm). Recommended controlling dimensions for room heights are: 23M (2300 mm); 24M (2400 mm); 25M (2500 mm); 26M (2600 mm); 27M (2700 mm); and, 28M (2800 mm). 20M (2000 mm); 21M (2100 mm); and 22M (2200 mm) are included for cellars, basements, and corridors only.

ISO/R 1790/1970 [ISO Recommendation] MODULAR CO-ORDINATION--REFERENCE LINES OF HORIZONTAL CONTROLLING CO-ORDINATING DIMENSIONS (1 page)

Fixes the position of reference lines of horizontal controlling co-ordinating dimensions between boundary planes and axial planes.

ISO 1791-1973 MODULAR CO-ORDINATION--VOCABULARY (4 pages--bilingual edition)

Gives the definitions of terms necessary for the planning, design and construction of buildings in accordance with the principles of modular co-ordination, and for the design and manufacture of components for use in such buildings.

ISO 2776-1974 MODULAR COORDINATION--CO-ORDINATING SIZES FOR DOORSETS--EXTERNAL AND INTERNAL (1 page)

Specifies the coordinating sizes for doorsets of all materials to be used in buildings, and which will fill co-ordinating spaces in dimensionally co-ordinated buildings of all types.
The co-ordinating sizes for external doorsets are as follows:
Width: Increments of 3M (300 mm) from 9M (900 mm) to 24M (2400 mm)
Height: Increments of 3M (300 mm) from 21M (2100 mm) to 30M (3000 mm).
The co-ordinating sizes for internal doorsets are as follows:
Width: Increments of 1M (100 mm) from 7M (700 mm) to 10M (1000 mm) and 3M (300 mm) from 12M (1200 mm) to 21M (2100 mm)
Height: Increments of 3M (300 mm) from 21M (2100 mm) to 30M (3000 mm).

ISO 2777-1974 MODULAR CO-ORDINATION--CO-ORDINATING SIZES FOR RIGID FLAT SHEET BOARDS USED IN BUILDING (1 page)

Specifies co-ordinating sizes for the length and width dimensions of rigid flat sheet boards used in buildings of all types.
Lengths: Increments of 3M (300 mm) from 18M (1800 mm) to 30M (3000 mm).
Widths: 6M (600 mm), 9M (900 mm), 12M (1200 mm)

ISO 2848-1974 MODULAR CO-ORDINATION--PRINCIPLES AND RULES (4 pages)

Specifies the aims of modular co-ordination and states the general principles and rules to be applied in determining the sizes of building components and equipment, and of assemblies and buildings themselves.

ISO 3055-1974 KITCHEN EQUIPMENT--CO-ORDINATING SIZES (2 pages)

Defines co-ordinating sizes or spaces for components of kitchen equipment (for example storage units, work tops, sink units and appliances) in dwellings. Includes minimum dimensions and preferred heights or lengths in some instances.

ISO 3571/1-1977 PASSENGER LIFT INSTALLATIONS--PART I: RESIDENTIAL BUILDINGS--DEFINITIONS, FUNCTIONAL DIMENSIONS AND MODULAR CO-ORDINATION DIMENSIONS (7 pages)

Fixes the necessary dimensions to permit the accommodation of passenger lift installations [elevators] in residential buildings, as well as the resultant modular co-ordination dimensions. Also fixes the dimensions of lift cars appropriate for these buildings. The standard is the first in a series which may eventually be consolidated into one document and adopt the principle of modular dimensions between boundary planes rather than axial planes.

ISO 3881-1977 BUILDING CONSTRUCTION--MODULAR CO-ORDINATION--STAIRS AND STAIR OPENINGS--CO-ORDINATING DIMENSIONS (2 pages)

Gives general principles for co-ordinating dimensions of stairs and stair openings in building construction of buildings of all types. Horizontal distances between co-ordinating planes shall be multiples of 3M (300 mm) as a first preference, and multiples of 1M (100 mm) as a second preference. The co-ordinating planes for location of floors shall be related to finished floor levels.

ISO 5731-1978 KITCHEN EQUIPMENT--LIMIT OF SIZE (2 pages)

Specifies the limit (minimum or maximum) of size to ensure co-ordination and interchangeability of the components of kitchen equipment as referred to in ISO 3055-1974. It covers only certain sizes having a special importance for the assembly.

ISO 5732-1978 KITCHEN EQUIPMENT--SIZES OF OPENINGS FOR BUILT-IN APPLIANCES (3 pages)

Specifies the sizes of openings for refrigerators, freezers, ovens, dishwashing machines and other household appliances, with the exception of cookers, built-in kitchen cupboards as referred to in ISO 3055-1974. Also specifies the sizes of openings for drop-in cooking tables (drop-in hobs) in worktops.

ISO Standards dealing in part with or mentioning modular co-ordination:

ISO 1803-1973 TOLERANCES FOR BUILDING--VOCABULARY (8 pages--bilingual edition)

ISO 1804-1972 DOORS--TERMINOLOGY (8 pages--bilingual edition)
Note: This subject has now been transferred to Technical Committee 162, Doors and windows.

ISO 2444-1974 JOINTS IN BUILDING--VOCABULARY (8 pages--bilingual edition)

ISO 3880/1-1977 BUILDING CONSTRUCTION--STAIRS--VOCABULARY--PART I (4 pages--bilingual edition)

PART 2.1 REGIONAL [MULTI-NATIONAL] STANDARDS--COPANT

Comisión Panamericana de Normas Técnicas [COPANT]

General Secretariat
Comisión Panamericana de Normas Técnicas (Pan American Standards Commission)
Lima 629
1073 Buenos Aires
República Argentina

Member Nations and National Standards Bodies represented:

Argentina [IRAM]; Bolivia [DGNT]; Brazil [ABNT]; Chile [INN]; Colombia [ICONTEC]; Ecuador [LNEN]; ICAITI (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua); Mexico [DGN]; Paraguay [INTN]; Peru [ITINTEC]; Uruguay [UNIT]; and, Trinidad & Tobago [TTBS].

Recomendación COPANT (up to 1971) and Norma Panamericana COPANT (from 1972)

[Issued in Spanish]

Information Source: Catalogue of Copant Pan American Standards and Recommendations (English), July 1977; and,
NBS Collection of International/National Standards

Recomendación COPANT

R 121 - 1968 Coordinación modular de la construcción: Bases, definiciones y condiciones generales [Modular coordination in building: Bases, definitions and general conditions] (8 pages A4)

Norma Panamericana COPANT

369 - 1972 Coordinación modular de la construcción: Serie modular normal de medidas [Modular coordination in building: Basic sizes] (3 pages A4)

370 - 1972 Coordinación modular de la construcción: Bloques modulares huecos de hormigón (concreto) [Modular coordination in building: Modular hollow concrete blocks] (3 pages A4)

371 - 1972 Coordinación modular de la construcción: Albañilería modular [Modular coordination in building: Modular masonry] (3 pages A4)

372 - 1972 Coordinación modular de la construcción: Módulos de proyecto [Modular coordination in building: Design modules (2 pages A4)

373 - 1972 Coordinacion modular de la construccion: Vanos modulares y sus cerramientos [Modular coordination in building: Modular openings and closures] (4 pages A4)

374 - 1972 Coordinación modular de la construcción: Posición de los componentes de la construcción con respecto a la cuadrícula modular de la referencia [Modular coordination in building: Position of building components in relation to the modular reference grid] (6 pages A4)

PART 2.2 SUB-REGIONAL [MULTI-NATIONAL] STANDARDS--ICAITI

Instituto Centro Americano de Investigación y Tecnología Industrial [ICAITI]
Av. La Reforma 4-47 -- Zona 10
Guatemala C.A.

Member Nations and National Standards Bodies represented:

Costa Rica; El Salvador; Guatemala; Honduras; and, Nicaragua.

[Information Source: NBS Collection of International/National Standards]

Norma Centroamericana (Issued in Spanish)

ICAITI 41 012 [1967] Coordinación modular de la construcción: Bases, definiciones y condiciones generales (4 pages A4)

ICAITI 41 013 [1967] Coordinación modular de la construcción: Selección de múltiplos preferidos (4 pages A4)

PART 3: NATIONAL STANDARDS ISSUED IN ENGLISH

PART 3.1 AUSTRALIA

Standards Association of Australia [SAA]
Standards House
80 Arthur Street [P.O. Box 458]
North Sydney N.S.W. 2060
Australia

[Information Source: Australian Standards 1978, Annual List of SAA Publications]

AS 1224-1972 PREFERRED SIZES OF BUILDING COMPONENTS (Metric units)

12 pages A4

Gives preferred coordinating dimensions for certain building components and assemblies which are dimensionally critical. Items dealt with include masonry and precast units, sheet materials, ceramic (or similar) tiles, doorsets, windows, roofing and cladding, roof lights, ceiling panels, flooring, and paving slabs. Recommendations for sizes of masonry panels, spacing of timber studs, and spacing of ceiling suspension rods are also given. Dimensions are consistent with recommendations for coordinated preferred dimensions in building given in AS 1234 in which the basic module of 100 mm is used.

AS 1233-1972 GLOSSARY OF TERMS FOR DIMENSIONAL COORDINATION

AS 1234-1972 RECOMMENDATIONS FOR COORDINATED PREFERRED DIMENSIONS IN BUILDING

Bound together under the title: Preferred Dimensions in Building (Metric Units)

16 pages A4

The combined standards deal with dimensional coordination in the building industry, using metric units as the basis. AS 1233 gives definitions and illustrates many of the terms. AS 1234 identifies the key reference planes in a building and gives various series of practical coordinated dimensions between them based on the international module of 100 mm and certain selected multiples. An appendix gives discursive information which explains the basic principles and how these are applied in practice.

AS 1351 SPACES IN DWELLINGS (Metric Units)

Part 1 - 1974 KITCHENS

4 pages A4

Specifies the preferred coordinating dimensions for spaces for kitchen fitments, work surfaces and appliances in dwellings when designed in accordance with the principles of coordinated preferred dimensions in buildings.

Selected Australian Standards showing dimensionally coordinated products in general conformance with AS 1224-1972 "Preferred sizes of building components."

AS 1346-1973	Concrete building bricks (metric units) 21 pages A5
AS 1428-1977	Code of practice for design rules for access by the disabled 34 pages A4 (Issued in preferred dimensions in conformance with AS 1233/1234-1972 "Preferred dimensions in building)
AS 1475-1977	SAA blockwork code 32 pages A4
AS 1500-1974	Concrete building blocks 23 pages A5
AS 1684 and Supplements	SAA light timber framing code (metric units) 52 pages A4 and 22 supplements [A4 size] showing light timber framing span tables for various groups and stress grades (All spans are in preferred metric dimensions)
AS 1889-1976	Vinyl asbestos floor tiles 20 pages A5
AS 1908 and 1909-1976	Specification for timber doorsets (1908) and code of practice for installation of timber doorsets (1909) 44 pages A5
AS 2055-1977	Flexible PVC floor-covering 20 pages A5

Other information:

SAA MH1-1972	Metric Handbook: Metric Conversion in Building and Construction Section 11: Coordination of dimensions in building; Section 12: Metric building materials 96 pages A4
SAA MH2-1975	Metric Handbook: Metric Data for Building Designers Section 3: Drawing practice; Section 5: Internal spaces and circulation; Section 6: Ramps, slopes and stairs; Section 7: External circulation; Section 8: Design guidance (on dimensional coordination)

PART 3.2 BRITAIN (UNITED KINGDOM)

British Standards Institution [BSI]
British Standards House
2 Park Street
London W1A 2BS
England

[Information Sources: British Standards Yearbook 1979; and,
NBS Collection of International/National Standards]

BS 2900:1970 Recommendations for the co-ordination of dimensions in building: GLOSSARY OF TERMS (12 pages A4)

Defines the terms used in modular and dimensional coordination, and the related subjects of tolerances and fits.

BS 4011:1966 Recommendations for the co-ordination of dimensions in building: CO-ORDINATING SIZES FOR BUILDING COMPONENTS AND ASSEMBLIES
Amendment AMD 1775, July 1975 (8 pages A4)

Makes recommendations for the derivation of the basic sizes for the co-ordinating dimensions of building components and assemblies for all types of buildings and all forms of construction. Lists four preferences [300 mm; 100 mm; 50 mm (up to 300 mm); and 25 mm (up to 300 mm)] from which BSI committees should select ranges of component sizes.

BS 4330:1968 Recommendations for the co-ordination of dimensions in building: CONTROLLING DIMENSIONS (20 pages A4)

Provides a framework of controlling dimensions for use in the design of buildings and for assistance in the derivation of basic sizes of dimensionally co-ordinated components, i.e. floor-to-floor and floor-to-roof heights; floor-to-ceiling heights; changes in level; horizontal spacing between loadbearing walls and columns; and, heights for door and window heads and sills. Appendix A gives sources of information by common building types and Appendix B shows the relation of controlling lines to grids. Appendix C gives Imperial equivalents of metric sizes.
The standard includes requirements of BS 4176:1967, Floor-to-floor heights, now withdrawn.

BS 5578 BUILDING CONSTRUCTION--STAIRS

Part 1:1978 VOCABULARY [= ISO 3880/1] (4 pages A4)

Part 3:1978 MODULAR COORDINATION: SPECIFICATION FOR COORDINATING DIMENSIONS FOR STAIRS AND STAIR OPENINGS [= ISO 3881] (4 pages A4)

General principles for coordinating dimensions.

BS 5606:1978 Code of Practice for ACCURACY IN BUILDING (60 pages A4)

The code of practice presents the results of a survey of building accuracy and shows how such data may be used in specifying permissible deviations. It outlines features of the building process which affect accuracy needing consideration at the design stage and recommends methods for achieving acceptable results during setting out and construction. The code is intended to be applied to building rather than civil engineering works.

PD 6432 — Recommendations for the co-ordination of dimensions in building: ARRANGEMENT OF BUILDING COMPONENTS AND ASSEMBLIES WITHIN FUNCTIONAL GROUPS

Part 1:1969 — FUNCTIONAL GROUPS 1, 2, 3 and 4; 44 pages A4

Lists building components and assemblies within functional groups 1 (structure), 2 (external envelope), 3 (internal subdivision) and 4 (services and drainage), with a series of gradings to indicate their relative importance for the purposes of dimensional coordination. The co-ordinating dimensions of components and assemblies are also identified, and a general grouping of the materials of construction is included to cover all components.

Part 2:1969 — FUNCTIONAL GROUP 5; 20 pages A4

Lists components of functional group 5 (fixtures, furniture and equipment) according to their functional activity, with a series of gradings to indiacte their relative importance for the purposes of dimensional coordination.

PD 6444 — Recommendations for the co-ordination of dimensions in building:

Part 1:1969 — BASIC SPACES FOR STRUCTURE, EXTERNAL ENVELOPE AND INTERNAL SUB-DIVISION. (Functional Groups 1, 2 and 3); 128 pages A4

Gives data and guidance in the selection of limited ranges of modular building components in functional groups 1, 2 and 3, by indicating the application of BS 4330 at a detailed level. The document contains three sections and six appendixes.

Part 2:1971 — CO-ORDINATING SIZES OF FIXTURES, FURNITURE AND EQUIPMENT. (Functional Group 5); 48 pages A4

Gives data and guidance in the selection of limited ranges of fixtures, furniture and equipment, by indicating the application of BS 4330 at a detailed level.

Supplement No.1 to PD 6444:Part 2:1971 AGRICULTURAL ITEMS 8 pages A4

PD 6446:1970 — Recommendations for the co-ordination of dimensions in building: COMBINATIONS OF SIZES

28 pages A4

Provides further guidance on the selection of limited ranges of co-ordinating sizes for additive building components, by an introduction to the use of combinations of numbers, or sizes.

DD 22:1972 — Recommendations for the co-ordination of dimensions in building: TOLERANCES AND FITS FOR BUILDING (The calculation of work sizes and joint clearances for building components).

52 pages A4

Describes dimensional and positional deviations in building, and the way these affect components and their joints. Introduces

statistically based methods of calculation for the determination of work sizes for components and for the assessment of joint clearances in building design. Gives recommendations for the specification of component sizes and tolerances, and includes worked examples. The document supersedes BS 3626:1963 and PD 6445:1969.

DD 51 — Draft for Development: GUIDANCE ON DIMENSIONAL CO-ORDINATION IN BUILDING

Loose leaf: Complete document 42 pages and cover A4; may also be purchased in eight separate sections as indicated below.

Offers guidance to designers and manufacturers, either an an introduction to the subject of dimensional co-ordination or as an initial point of reference in practice, on the application of the theory of dimensional co-ordination in the design of building projects and the manufacture of components, taking into account a selection of British Standards and other publications of similar standing.

Section 0:1977 INTRODUCTION 2 pages

Section 1:1977 BASIS OF DIMENSIONAL CO-ORDINATION 4 pages

Section 2:1977 SIZES AND LOCATION OF COMPONENTS 4 pages

Section 3:1977 DETAILED DESIGN FOR FIT 8 pages

Section 4:1977 COMMUNICATION 4 pages

Section 5:1977 DIMENSIONALLY CO-ORDINATED PRODUCTS IN BRITISH STANDARDS 8 pages

Section 6:1977 A SELECTED BIBLIOGRAPHY 8 pages

Section 7:1977 SUMMARY 4 pages

DD 51 is a comprehensive and up-to-date statement on dimensional co-ordination in building, which has been issued in a loose-leaf format to permit the purchase of individual documents and to facilitate updating.

Selected British Standards showing dimensionally co-ordinated products in general conformance with BS 4011:1966 "Recommendations for the co-ordination of dimensions in building: Co-ordinating sizes for building components and assemblies."

BS 690 — Asbestos-cement slates and sheets
Part 2:1971 Flat sheets, semi and fully compressed 12 pages A5

BS 990 — Steel windows generally for domestic and similar buildings
Part 2:1972 Metric Units 40 pages A4

BS 1105:1972 — Woodwool slabs up to 102 mm thick 10 pages A4

BS 1180:1972 — Concrete bricks and fixing bricks

BS 1188:1974 Ceramic wash basins and pedestals 8 pages A4

BS 1189:1972 Cast iron baths for domestic purposes 20 pages A5

BS 1195 Kitchen fitments and equipment
Part 2:1972 Metric Units 36 pages A5

BS 1197 Concrete flooring tiles and fittings
Part 2:1973 Metric Units 8 pages A4

BS 1230:1970 Gypsum plasterboard 12 pages A5

BS 1244 Metal sinks for domestic purposes
Part 2: 1972 Metric Units 8 pages A4

BS 1281:1974 Glazed ceramic tiles and tile fittings for internal walls
24 pages A4

BS 1286:1974 Clay tiles for flooring 28 pages A4

BS 1390:1972 Sheet steel baths for domestic purposes 20 pages A5

BS 2028, 1364: 1968 Precast concrete blocks--Amendment No.1 (Jan. 1970), Metric preferred dimensions 3 pages A5

BS 2592:1973 Thermoplastic flooring tiles 8 pages A4

BS 3260:1969 PVC (vinyl) asbestos floor tiles 24 pages A5

BS 3261:Part 1: 1973 Unbacked flexible PVC flooring--Part 1: Homogeneous flooring
16 pages A4

BS 3705:1972 Recommendations for provision of space for domestic kitchen equipment 12 pages A5

BS 3921:1974 Clay bricks and blocks 32 pages A4

BS 4022:1970 Prefabricated gypsum wallboard panels 12 pages A5

BS 4046 Compressed straw building slabs
Part 2:1971 Metric units 12 pages A5

BS 4131:1973 Terrazzo tiles 16 pages A4

BS 4305:1972 Baths for domestic purposes made from cast acrylic sheet 36 pages A5

BS 4606:1970 Recommendations for the co-ordination of dimensions in building: Co-ordinating sizes for rigid flat sheet materials used in building 12 pages A5

BS 4680:1971 Clothes lockers

BS 4787 Internal and external wood doorsets, door leaves and frames
Part 1:1972 Dimensional requirements 16 pages A4

BS 4873:1972 Aluminium alloy windows 16 pages A4

BS 4943:1973 Co-ordinating sizes for corrugated sheet materials used in building 4 pages A4

BS 5395:1977 Code of practice for stairs 32 pages A4

DD 34:1974 Clay bricks with modular dimensions 36 pages A4

PART 3.3 CANADA

Canadian Standards Association [CSA]
178 Rexdale Boulevard
Rexdale
Ontario
Canada, M9W 1R3

[Information Source: 1978 CSA Standards Catalogue, and
NBS Collection of International/National Standards]

CAN3-A31.M-75 SERIES OF STANDARDS FOR METRIC DIMENSIONAL CO-ORDINATION IN BUILDING (37 Pages AQ [American Quarto] 215 x 280 mm)

[Will supersede A31-1959 when metric conversion is completed]

Parts:

CAN3-A31.1M-75 GLOSSARY OF TERMS FOR METRIC DIMENSIONAL CO-ORDINATION IN BUILDING (Illustrated)

Defines the terms to be used in metric dimensional co-ordination in building.

CAN3-A31.2M-75 PRINCIPLES AND RULES FOR DIMENSIONAL CO-CO-ORDINATION IN BUILDINGS

Specifies the aim of modular co-ordination and states the general principles and rules to be applied in the determination of the dimensions of all building components and their assembly and to be applied to buildings as a whole.

CAN3-A31.3M-75 CONTROLLING DIMENSIONS IN BUILDING

Gives recommendations for co-ordinating controlling dimensions in building, for spacing of columns, positioning of walls, floors and ceilings and for the heights of door and window heads and sills. Controlling dimensions are key dimensions which must be established in relation to functional and user requirements. These dimensions are taken between planes in the controlling reference system.

CAN3-A31.4M-75 RECOMMENDED METRIC CO-ORDINATING DIMENSIONS FOR THE SIZING OF BUILDING COMPONENTS

Gives recommendations for preferred sizes to be applied to key building materials and components. Dimensions shown are co-ordinating dimensions or those of the theoretical space occupied by the component including such allowances as required for tolerances and jointing.
Appendixes show: Examples of the use of preferred dimensions; examples of the sizing of modular components; and, combination of sizes. The Appendixes are not a mandatory part of the standard.

CAN3-A31.M-75 [Continued]

CAN3-A31.5M-75 A GUIDE TO THE ESTABLISHMENT OF TOLERANCES FOR METRIC DIMENSIONAL CO-ORDINATION IN BUILDING

Covers definition of terms used in the study and application of tolerances to metric dimensional coordination in building.

Other Canadian Standards showing dimensionally co-ordinated products in general conformance with CAN3-A31.4M 75 "Recommended metric co-ordinating dimensions for the sizing of building components."

CAN2-75.1-M 77 Tile, Ceramic (9 pages)

Table 2 shows nominal dimensions for metric modular tiles

CAN2-92.1-M 77 Acoustical units, Prefabricated (9 pages AQ)

Including lightweight tile, board, panel or linear type prefabricated units provising acoustical treatment and interior finish. Includes metric modular sizes.

A165-M 1977 CSA Standards on concrete masonry units (66 pages)

Table 2 shows dimensions for standard units conforming to CAN3-A31.M-75.

0132.1-M 1977 Wood windows (30 pages)

Appendix A shows preferred modular window sizes [Not a mandatory part of the standard].

PART 3.4 CYPRUS

Cyprus Organization for Standards and Control of Quality [CYS]
Ministry of Commerce and Industry
Nicosia
Cyprus

[Information Source: NBS Collection of International/National Standards]

CYS 51 : 1978 MODULAR CO-ORDINATION--BASIC MODULE (5 pages A4)

Fixes the definition and symbol of the module used as a basis for the standardized modular co-ordination of buildings, of their constituent parts and of the building components used in their construction; and the value of the basic module.

[Corresponds to ISO 1006:1973, "Modular coordination--Basic module."]

CYS 52 : 1978 MODULAR CO-ORDINATION--PRINCIPLES AND RULES (6 pages A4)

Specifies the aims of modular co-ordination and states the general principles and rules to be applied in determining the sizes of building components and equipment, and of assemblies and buildings themselves.

[Identical with ISO 2848:1974, "Modular co-ordination--Principles and rules;" except where the words "International standard" are used they should be interpreted as "Cyprus standard."]

PART 3.5 INDIA

Indian Standards Institution [ISI]
Manak Bhavan,
9 Bahadur Shah Zafar Marg
New Delhi 110002
India

[Information Source: Sectional List of Indian Standards 3 - Civil Engineering
Published up to 30 September 1977
and NBS Collection of International/National Standards]

IS:1233 - 1969 RECOMMENDATIONS FOR MODULAR CO-ORDINATION OF DIMENSIONS IN THE BUILDING INDUSTRY [First Revision] (12 pages A5)

Defines the basic principles to be adopted for dimensional co-ordination in the building industry and deals with its application in building design and manufacture of building material and components. Lists objectives of modular co-ordination, and adopts basic module of 10 cm (100 mm).

IS:2375 - 1963 RECOMMENDATIONS FOR MODULAR CO-ORDINATION APPLIED TO RCC FRAMED STRUCTURES (6 pages A5)

Lays down recommendations for preferred dimensions of reinforced concrete structural members like beams, columns, braces, and their relative disposition with a view to achieving modular co-ordination.

IS:2718 - 1964 RECOMMENDATIONS FOR PREFERRED DIMENSIONS FOR STOREY-HEIGHTS (5 pages A5)

Lays down recommendations for preferred dimensions for storey-heights, with preferences for multiples of 0.2 m (200 mm) between 2.6 m (2600 mm) and 3.8 m (3800 mm).

IS:4993 - 1973 GLOSSARY OF TERMS RELATING TO MODULAR CO-ORDINATION [First Revision] (10 pages A5)

Gives definitions of terms used in modular co-ordination for study, planning and construction of building designed in accordance with the principles of modular co-ordination and for the study and manufacture of the components used in such buildings. Revised to align it closely with ISO 1791 and 1803.

IS:6408 - 1971 RECOMMENDATIONS FOR MODULAR CO-ORDINATION--APPLICATION OF TOLERANCES IN BUILDING INDUSTRY (14 pages A5)

Lays down the basis for uniform application of dimensional tolerances in the building industry.

IS:6772 - 1972 RECOMMENDATIONS FOR DIMENSIONAL CO-ORDINATION FOR INDUSTRIALIZED BUILDINGS--PREFERRED INCREMENTS (6 pages A5)

Gives recommendations for preferred increments for the building components and spaces and the method of application of the preferred increments to vertical and horizontal dimensions. The recommendations are specifically related to the dimensional requirements of housing.

IS:6820 - 1972 RECOMMENDATIONS FOR MODULAR CO-ORDINATION RULES FOR MODULAR PLANNING (14 pages A5)

Lays down basic principles for modular layout of buildings through use of modular and multimodular grids and fixes the interrelationship of building dimensions in planning and execution of building to aid fabrication of building components.

IS:7564 - 1974/5 RECOMMENDATIONS FOR CO-ORDINATION OF DIMENSIONS IN BUILDINGS--ARRANGEMENT OF BUILDING COMPONENTS AND ASSEMBLIES

Part I - 1974 FUNCTIONAL GROUP 1 - STRUCTURE (12 pages A5)

Lays down recommendations for co-ordinating dimensions of building components and assemblies for functional group 1--structure--which comprises the following elements of construction: Foundation, floors, roofs, floor and roof beams, roof trusses and arches, load bearing walls, staircases, ramps and raker beams.

Part 2 - 1974 FUNCTIONAL GROUP 2 - EXTERNAL ENVELOPE (10 pages A5)

Lays down recommendations for co-ordinating dimensions of building components and assemblies for functional group 2--external envelope--which comprises of the following elements of construction: Walls, wall openings, roofs and roof openings.

Part 3 - 1974 FUNCTIONAL GROUP 3 - INTERNAL SUBDIVISION (8 pages A5)

Lays down recommendations for co-ordinating dimensions of building components and assemblies for functional group 3--internal subdivision--which comprises the following elements of construction: Partitions, floors, ceilings and staircases.

Part 4 - 1975 FUNCTIONAL GROUP 4 - SERVICES AND DRAINAGE (14 pages A5)

Lays down recommendations for co-ordinating dimensions of building components and assemblies for functional group 5--services and drainage--which comprises the following: Heating, water, fire fighting, ventilation and air distribution, electrical, drainage, refuse collection and disposal, transportation, and miscellaneous equipment and services.

Part 5 - 1974 FUNCTIONAL GROUP 5 - FIXTURES, FURNITURE AND EQUIPMENT (20 pages A5)

Lays down recommendations for co-ordinating dimensions of building components for functional group 5--fixtures, furniture and equipment--which comprises of the following functional activities: Domestic living, commercial and community servicing, teaching, learning and research, production, farming, manufacture, distribution-retailing and communication.

[Assistance in the preparation of these standards has been derived from PD 6432:Parts 1 and 2: 1969, published by the British Standards Institution.]

IS:7184 - 1973 RECOMMENDATIONS FOR MODULAR CO-ORDINATION REFERENCE LINES OF HORIZONTAL CONTROLLING CO-ORDINATING DIMENSIONS
(pages A5)

IS:7921 - 1975 RECOMMENDATION FOR MODULAR CO-ORDINATION--MULTIMODULES AND PREFERRED SIZES FOR HORIZONTAL CO-ORDINATING AND CONTROLLING DIMENSIONS (8 pages A5) Issued May 1976

Specifies values of multimodules for horizontal co-ordinating dimensions and ranges of preferred sizes for horizontal controlling dimensions, that is, widths of building components like doors, windows, built-in furniture and fixtures, widths and spacings of controlling zones for columns, and load-bearing walls. Applies to the construction of buildings of all types.

IS:7922 - 1975 RECOMMENDATION FOR MODULAR CO-ORDINATION--MULTIMODULES AND PREFERRED SIZES FOR VERTICAL CO-ORDINATING AND CONTROLLING DIMENSIONS (8 pages A5) Issued May 1976
Amendment No.1 November 1976

Specifies values of multimodules for vertical co-ordinating dimensions and ranges of preferred sizes for vertical controlling dimensions, that is, heights of building components like doors, windows, built-in furniture and fixtures, heights of controlling zones, storey heights and room heights. Applies to the construction of buildings of all types, but the application of certain sizes is limited to particular types of buildings.

PART 3.6 IRELAND (EIRE)

Institute for Industrial Research and Standards [IIRS]
Ballymun Road
Dublin 9
Republic of Ireland

[Information Source: Irish Standards Handbook 1977
NBS Collection of International/National Standards]

Product standards dealing with dimensionally co-ordinated products:

Irish Standard Specifications:

I.S. 20 - 1974	Concrete building blocks (48 pages A5) Includes Appendix (For Information Only): Notes to Users-- Concrete Blocks in the Context of Modular Co-ordination.
I.S. 91 - 1974	Clay bricks and blocks (72 pages A5) Includes Appendix (For Information Only): Notes for Users-- Bricks and Blocks in the Context of Modular Co-ordination.
I.S. 190 - 1974	Calcium silicate building blocks (36 pages A5) Includes Appendix (For Information Only): Notes for Users-- Bricks in the Context of Modular Co-ordination.
I.S. 41 - 1975	Gypsum plasterboard (12 pages A5) Includes Modular Sizes in Table 1.
I.S. 63 Part 1 - 1976	Wood windows and wood surrounds for metal windows--Dimensions (20 pages A5) Shows metric co-ordinating sizes in Table 1.
I.S. 132 Part 1 - 1975	Stainless steel sinks for domestic purposes (12 pages A5) Includes metric-modular sizes in Table 3 and refers to ISO 3055.

Note: The principal reference on modular co-ordination quoted in the explanatory material contained in Appendixes is "Modular Guidelines," (106 pages A4), issued by An Forss Forbartha (The National Institute of Physical Planning and Construction Research) in October 1972.

PART 3.7 JAMAICA

Jamaican Bureau of Standards [JBS]
6 Winchester Road
P.O. Box 113
Kingston 10
Jamaica

[Information Source: NBS Collection of International/National Standards]

The following standards contain references to metric preferred dimensions:

JS 35:1975 Jamaican standard specification for standard hollow concrete blocks (imperial and metric sizes) 20 pages A4

JS 50:1977 Jamaican standard specification for concrete and terrazzo flooring tiles 25 pages A4

PART 3.8 MALAYSIA

Standards and Industrial Research Institute of Malaysia [SIRIM]
Lot 10810, Phase 3, Federal Highway
P.O. Box 35, Shah Alam
Selangor
Malaysia

[Information Source: NBS Collection of International/National Standards]

The following standards include preferred dimensions of building products:

MS 7.2:1971 Specification for precast concrete blocks (62 pages A5) [Traditional sizes expressed in metric units--Ed. note: subject to review

MS 7.6:1973 Specification for bricks and blocks of fired brick-earth clay or shale--Part 2: Metric units

PART 3.9 NEW ZEALAND

Standards Association of New Zealand [SANZ]
Private Bag
Wellington
New Zealand

[Information Source: MP 100:1978--Index 1978 (of New Zealand Standards) issued annually by the Standards Association of New Zealand; and
NBS Collection of International/National Standards

NZS 4201P:1973 CODE OF PRACTICE FOR MODULAR COORDINATION IN BUILDING [Metric]

NZS 4101:1974 RECOMMENDATIONS FOR SPACE PROVISION FOR FITMENTS, APPLIANCES AND STORAGE IN DOMESTIC KITCHENS [Metric] (12 pages A4)

Gives recommendations for preferred metric dimensions in co-ordinated sizes of the spaces required for fitments, appliances, storage and work in domestic kitchens.

NZS 4207:197 PREFERRED CO-ORDINATING SIZES FOR RIGID FLAT SHEET MATERIALS USED IN BUILDING

NZS 5902 BUILDING DRAWING PRACTICE

Part 1:1976	General and Architectural	84 pages A4
Part 2:1976	Structural--Concrete, Steel and Timber	50 pages A4
Part 3:1976	Services--Mechanical and Sanitary	78 pages A4
Part 4:1976	Services--Electrical	52 pages A4

Contains some references to dimensionally coordinated drawings

PART 3.10 NIGERIA

Nigerian Standards Organization [NSO]
Federal Ministry of Industries
11 Kofo Abayomi Road
Victoria Island
Lagos

[Information Source: NBS Collection of International/National Standards.]

The following Nigerian standards include preferred dimensions for building products:

NIS 23:1973 Specification for flexible PVC flooring (Metric) 25 pages A5

NIS 35:1974 Specification for PVC (vinyl) asbestos floor tiles (Metric) 14 pages A5

NIS 74:1976 Specification for burnt clay building units

NIS 86:1977 Specification for sandcrete blocks

PART 3.11 RHODESIA (ZIMBABWE / RHODESIA)

Standards Association of Central Africa
17 Coventry Road
Salisbury
Zimbabwe/Rhodesia

[Information Source: 1978 Catalogue of Central African Standards; and, NBS Collection of International/National Standards.]

The following standards include information on preferred dimensions of building products:

CAS No. 103:1974 Glazed ceramic wall tiles and fittings (Endorsement of BS 1281:1966) 32 pages A5
[Gives the requirements for one size of tile: 150 x 150 x 6 mm, and various fittings.]

CAS No. 115:1974 Terrazzo tiles (Endorsement of BS 4131:1973) 13 pages A4

CAS No. 119:1974 Precast concrete masonry blocks (First revision of CAS No. A9:1960) 17 pages A4
[Includes metric modular blocks]

CAS No. 221:1978 Burnt clay building bricks and blocks

PART 3.12 SINGAPORE

Singapore Institute of Standards and Industrial Research [SISIR]
179, River Valley Road
P.O. Box 2611
Singapore 6

[Information Sources: Singapore Standards Yearbook 1977 + Supplement 1; and, NBS Collection of International/National Standards.]

Singapore Standards (S.S.) are issued in English

S.S. 118 - 1975 STEEL WINDOWS AND DOORS FOR DOMESTIC AND SIMILAR BUILDINGS
36 pages A4

Co-ordinating sizes, work sizes, tolerances and deviations for side-hung, top-hung and horizontally pivoted steel windows and doors are given. Materials, including furniture fittings and finishes are included; also complete design range, with details and sections, fixings.

Other standards showing dimensionally coordinated or compatible products:

S.S. 58 - 1972 Asbestos cement flat and corrugated sheets
[Includes 400 x 200 roofing slates]

S.S. 76M - 1975 Precast concrete blocks (metric) 17 pages A4
[Metric preferred (modular-coordinated) sizes are given]

S.S. 103M - 1975 Burnt clay and shale bricks 20 pages A4
[Uses British standard metric brick format]

S.S. 116 - 1975 PVC (vinyl) asbestos floor tiles 25 pages A4

PART 3.13 SOUTH AFRICA

South African Bureau of Standards [SABS]
Private Bag X191
Pretoria, 0001
Republic of South Africa

[Information Source: SABS Yearbook 1977]

SABS 993-1972 Specification for MODULAR CO-ORDINATION IN BUILDING (Metric Units)

32 pages [English/Africaans] A4

Contains definitions of the terms used in modular co-ordination and covers the dimensions of the basic module and derived modules, vertical and horizontal controlling dimensions in building, and preferred basic sizes for components and assemblies. Recommendations for the use of the system of modular co-ordination are contained in an appendix to the specification.

Other publications:

Recommended Practice for Building Drawing (June 1970)--Prepared by the Metrication Department of the South African Bureau of Standards 80 pages A4

Contains examples of drawing practice for modular coordination

PART 3.14 SRI LANKA

Bureau of Ceylon Standards [BCS]
53, Dharmapala Mawatha
Colombo 3
Sri Lanka

[Information Source: Price List of Sri Lanka Standards, 1978; and, NBS Collection of International/National Standards]

C.S. 129: 1972 Ceylon Standard Specification for "Basic Module" to be Used in the Building Industry (6 Pages A5)

Covers the definition, symbol and value of the "Basic Module," and is based on ISO 1006.

C.S. 130: 1972 Ceylon Standard Specification for Horizontal Multimodules to be Used in the Building Industry (7 pages A5)

Recommends the values of multimodules to be used in designing of the overall structure of all buildings, based on the recommendations of ISO 1040 and Danish Standard Recommendation DS/R 1075.

C.S. 131: 1972 Ceylon Standard Glossary of Terms used in Modular Co-ordination in the Building Industry (11 pages A5)

Contains the terms used in the building industry with special reference to modular co-ordination, making extensive use of ISO 1791 and 1803.

C.S. 132: 1972 Ceylon Standard Specification for Classification of Building Components for Dimensional Co-ordination (9 pages A5)

Grades components in five functional groups into three categories of decreasing order of priority for dimensional co-ordination. Assistance in preparation was derived from British Standards Institution PD 6432.

C.S. 365: Standard Recommendations for Modular Co-ordination Application of Tolerances in the Building Industry

PART 3.15 ZAMBIA

Zambian Standards Institute [ZSI]
P.O. Box RW 259
Lusaka
Zambia

Zambian standards are issued in English.

Standards containing modular co-ordinating sizes for building products:

ZS 006 : 1973 Asbestos-cement--Flat sheets and slates--Semi and fully compressed (7 pages A4)

Modular co-ordinating sizes are shown in Section 2.4

ZS 007 : 1973 Precast concrete and sand-cement blocks (15 pages A4)

Modular dimensions are shown in Section 5, Table 1, and Figure 1.

PART 4: LATIN-AMERICAN COUNTRIES

PART 4.1 ARGENTINA

Instituto Argentino de Racionalización de Materiales [IRAM]
Chile 1192
1098 Buenos Aires
República Argentina

[Information Source: Catalogo de Normas IRAM 1978]

Normas IRAM (Issued in Spanish)

11 608/65 Coordinación modular de la construcción: Definiciones y condiciones generales (Revisada - Act. 10/67). (31 pages)

11 609/65 Coordinación modular de la construcción: Medidas y tolerancias (Act. 10/67. En folleto c/11 608).

11 610/65 Coordinación modular de la construcción: Elementos modulares (Act. 10/67. En folleto c/11 608).

11 611/67 Coordinación modular de la construcción: Serie de medidas preferibles (En folleto c/11 608)

11 612/68 Bloques huecos modulares de hormigón de cemento pórtland (10 pages)

11 613/70 Coordinación modular de la construcción: Albañilería modular (11 pages)

11 614/69 Coordinación modular de la construcción: Módulos de proyecto (5 pages)

11 615/70 Coordinación modular de la construcción: Vanos modulares y sus cerramientos (71 pages)

11 616/71 Coordinación modular de la construcción: Posición de los componentes de la construcción con respecto a la cuadrícula modular de referencia (11 pages)

11 617/73 Coordinación modular de la construcción: Alturas modulares de locales y de piso a piso (5 pages)

11 618/72 Coordinación modular de la construcción: Locales e instalaciones sanitarias modulares (8 pages)

11 619/73 Coordinación modular de la construcción: Alturas modulares para entrepisos (4 pages)

11 620/73 Coordinación modular de la construcción: Paneles modulares (4 pages)

11 621/73 Coordinación modular de la construcción: Espacios modulares para escaleras (4 pages)

11 622/72 Coordinación modular de la construcción: Componentes modulares cerámicos, de hormigón y mixtos, para forjados (13 pages)

11 623/74 Coordinación modular de la construcción: Juntas para componentes modulares (6 pages)

11 624/74 Coordinación modular de la construcción: Método de cálculo de los espesores de junta y de las medidas nominales y tolerancias para componentes modulares (11 pages)

PART 4.2 BRAZIL

Associação Brasileira de Normas Técnicas [ABNT]
Av. 13 de Maio, n°13 - 2° andar
Caixa Postal, 1680
CEP: 20.000 - Rio de Janeiro - RJ
Brazil/Brasilia

[Information Source: Catálogo de Normas Técnicas Brasileiras 1974 and Lista do Valor de Reembolso das Publicacões 1977; and, NBS Collection of International/National Standards]

Brazilian standards are issued in Portuguese

Coordenação modular da construção:

NB - 25/69	Coordenação modular da construção--Bases, definições e condições gerais
NB - 302/73	Posicão dos componentes da construção em relocão à quadrícula modular de referência
NB - 303/73	Vaõs modulares e seus fechamentos
NB - 304/73	Multimódulos
NB - 305/73	Alturas modulares de piso a piso, de compartimento e estrutural
NB - 306/73	Tijolos modulares de barro cozido
NB - 307/73	Blocos vazados modulares de concreto
NB - 331/73	Alturas modulares de tato-piso (entre parimentos consecutivos)
NB - 332/73	Painéis modulares verticais
NB - 337/73	Locais e instalacoẽs sanitárias modulares
NB - 338/73	Componentes de cerâmica, de concreto ou de outro material, utilizado em lajes mistas na construção coordenada modularmente
NB - 339/73	Espaços modulares para escados
NB - 340/73	Avenaria modular
NB - 343/73	Revestimentos
NB - 344/73	Coberturas
NB - 345/73	Divisória modular vertical interna
NB - 346/73	Esquadrias modulares
NB - 372/74	Forro modular horizontal de acabamento (placas, chapas, ou similares)

NB - 373/74 Tacos modulares de madeira para soalhos na constução coordenada modularmente

NB - 422/74 Equipamento para complemento de habitação na construção coordenada modularmente

NB - 423/74 Detalhes modulares de esquadrias

NB - 424/74 Princípios fundamentais para a elaboração dos projetos coordenados modularmente

SB - 62/74 Simbologia--Coordenação modular da construção

TB - 202/74 Terminologia--Coordenação modular da construção

PART 4.3 CHILE

Instituto Nacional de Normalización [INN]
Matias Cousino 64 - 6° piso
Casilla 995 - Correo 1
Santiago Chile

[Information Source: Catalogo De Normas Chilenas 1975]

Normas Chilenas N°

346	Arquitectura y construcción--Coordinación modular--Módulo normal.
447	Carpintería--Modulación de ventanas y pertas.
641	Arquitectura y construcción--Coordinación modular--Vanos y cerramientos.
684	Arquitectura y construcción--Coordinación modular--Terminología y representación gráfica.
685	Arquitectura y construcción--Coordinación modular--Serie normal de dimensiones.
710	Arquirectura y construcción--Coordinación modular--Alturas libres interiores y espesores de entrepriso en viviendas.
741	Arquitectura y construcción--Coordinación modular de la construcción--Albañilerías modulares.
742	Arquitectura y construcción--Coordinación modular de la construcción--Bloques modulares huecos de hormigón.
743	Arquitectura y construcción--Coordinación modular de la construcción--Módulos de proyectos.
744	Arquitectura y construcción--Coordinación modular de la construcción--Posición de los componentes de la construcción con respecto a la red modular de referencia.
771	Arquitectura y construcción--Coordinación modular--Ladrillos cerámicos--Dimensiones modulares.
831	Coordinación modular en albañilería de ladrillos cerámicos--Terminología y requisitos.
886	Arquitectura y construcción--Coordinación modular en elementos para entreprisos.
887	Arquirectura y construcción--Coordinación modular--Paneles verticales--Serie de dimensiones.
984	Arquitectura y construcción--Coordinación modular--Componentes de pavimentos--Dimensiones.

PART 4.4 COLOMBIA

Instituto Colombiano de Normas Técnicas [ICONTEC]
Carrera 37 No. 52-95
P.O. Box 14237
Bogotá
Colombia

[Information Source: Catálogo de Normas Técnicas Colombianas 1977]

Colombian standards are issued in Spanish.

249 (1971) Dimensiones modulares de bloques huecos de hormigón (concreto)
[Resolución No.94--71-03-16]

296 (1971) Dimensiones modulares de ladrillos cerámicos
[Resolución No.92--71-03-16]

455 Dimensiones modulares de vanos para ventanas

503 Dimensiones modulares de puertas de madera y puertas metálicas
[Resolución No.526--73-10-10]

651 Alturas modulares de piso a piso y de locales

927 Medidas modulares de paneles verticales

PART 4.5 MEXICO

Direccion General de Normas [DGN]
Tuxpan No. 2
Mexico 7, D.F.

[Information Source: Normas officiales mexicanas-Catalogo 1975
NBS Collection of International/National Standards]

Mexican standards are issued in Spanish.

DGN C 46 - 1973 Reglas generales de la coordinacion modular de la construccion.

DGN C 47 - 1973 Medidas en la coordenacion modular de la construccion y su clasificacion.

DGN C 46 - 1973 Definiciones de los componentes en la coordinacion modular.

DGN C 78 - 1974 Dimensiones modulares para ventanas.

DGN C 79 - 1974 Dimensiones modulares para puertas interiores.

DGN C 86 - 1974 Medidas modulares verticales preferentes para la construccion.

DGN C 225 - 1973 Principios generales de la coordinacion modular de la construccion.

PART 4.6 PERU

Instituto de Investigación Tecnológica
Industrial y de Normas Técnicas [ITINTEC]
Av. Abancay No. 1176 - 2° piso
Apartado No. 145
Lima 1 Peru

[Information Source: Catalogo 78 de Normas Técnicas]

400.003-75 Coordinación modular de la construcción--Bases, definiciones y condiciones generales.

400.004-75 Coordinación modular de la construcción--Serie modular normal de medidas.

400.005-75 Coordinación modular de la construcción--Bloques modulares huecos de concreto para muros y tabiques--

400.006 Coordinación modular de la construcción--Albañilería modular.

400.007-75 Coordinación modular de la construcción--Módulos de proyecto.

400.008 Coordinación modular de la construcción--Vanos modulares y sus cerramientos.

400.009-75 Coordinación modular de la construcción--Ubicación de los componentes de la construcción respecto a la cuadrícula modular de referencia.

PART 4.7 URUGUAY

Instituto Uruguayo de Normas Tecnicas [UNIT]
Agraciada 1464 P.9 Ap. 92
Montevideo
Uruguay

[Uruguay is a member of COPANT, but not of ISO]

[Information Source: Instituto Uruguayo de Normas Tecnicas--Catalogo 1976]

UNIT 365 [1974] Coordinación modular de la construcción--Bases, definiciones y condiciones generales (10 pages)
Corresponds completely to COPANT R 121-1968

UNIT 366 [1974] Coordinación modular de la construcción--Serie modular normal de medidas (5 pages)
Corresponds completely to COPANT 369-1972

UNIT 367 [1974] Coordinación modular de la construcción--Módulos de proyectos (4 pages)
Corresponds completely to COPANT 372-1972

UNIT 368 [1974] Coordinación modular de la construcción--Vanos modulares y sus cerramientos (6 pages)
Corresponds completely to COPANT 373-1972

UNIT 369 [1974] Coordinación modular de la construcción--Posición de los componentes de la construcción con respecto a la quadrícula modular de referencia (8 pages)
Corresponds completely to COPANT 374-1972

UNIT 428 [1975] Medidas de vanos de puertas y puertas no expuestas a la intemperie (8 pages)

PART 4.8 VENEZUELA

Comisión Venezolana de Normas Industriales [COVENIN]
Av. Boyacà (Cota Mil)
Edf. Fundación La Salle, 5° piso
Caracas 105
Venezuela

[Information Source: Catalogo de Normas Venezolanas Covenin 1975]

Venezuelan standards are issued in Spanish.

COVENIN 220 Coordinación modular; base, definiciones y condiciones generales

PART 5: WESTERN EUROPEAN COUNTRIES (Languages other than English)

PART 5.1 AUSTRIA (Österreich)

Österreichisches Normungsinstitut [ÖN]
Leopoldsgasse 4
Postfach 130
A-1021 Wien/Vienna 2
Austria

[Information Source: Önormen Verzeichnis 1979; and
NBS Collection of International/National Standards]

ÖNORM B 1010 [1973] Maßordnung im Bauwesen--Modulordnung--Grundlagen
[Dimensional co-ordination in building--Modular co-ordination--Principles] (11 pages A4)

Standards referencing the basic building module and coordinating dimensions:

ÖNORM B 1201 [1977] Kleinkipptore mit Federzugausgleich (Einbaumaße un Baurichtlinien [Springbalanced overhead doors: dimensions for installation and specifications for construction] (7 pages A4)

ÖNORM B 3252 [1977] Vorgefertigte Betonerzeugnisse zur Befestigung von Verkehrsflächen [Prefabricated concrete products for the pavement of traffic areas] (7 pages A4)

ÖNORM B 3410 [1976] Gipskartonplatten (Arten, Anforderungen, Prüfungen) [Gypsum plasterboards: types, requirements, testing] (10 pages A4)

PART 5.2 BELGIUM

Institut Belge de Normalisation [IBN]
Av. de la Brabaconne, 29
B-1040 Bruxelles
Belgium/Belgique

[Information Source: NBN Catalogue 1977-1978; and
NBS Collection of International/National Standards]

NBN Standards issued in French or Flemish (néerlandais)

[Information Source: NBN Catalogue 1977-1978; and,
NBS Collection of International/National Standards]

NBN 180-1948 Coordination des dimensions des constructions--Système du module--Directives fondamentales (10 pages A4 bilingual)

NBN 181-1948 Coordination des dimensions des constructions--Système du module--Directives générales applicables a la maçonnerie (4 pages A4 bilingual)

NBN 208-1950 Coordination des dimensions des constructions--Système du module--Baies et châssis de fenêtres (10 pages A4 bilingual)

NBN 217-1949 Coordination des dimensions des constructions--Système du module--Hauteurs d'étages (4 pages A4 bilingual)

NBN 227-1950 Coordination des dimensions des constructions--Système du module--Baies de portes et portes (6 pages A4 bilingual)

Standards relating to products with modular dimensions:

NBN 538-1962 Blocs en beton pour maçonnerie ordinaire [Reference to modular dimensions in Section 3]

Standards for wall tiles (carreaux pour revêtement de parois) and floor tiles (carreaux pour revêtement de sols) which include modular sizes:

NBN B 27 - 101, 102, 103, 104, 105, 106, 107

PART 5.3 DENMARK

Dansk Standardiseringsraad [DS]
Aurehøjvej 12 and 15
Postbox 77
DK-2900 Hellerup
Denmark

[Information Sources: Dansk Standard Katalog 77; and,
NBS Collection of International/National Standards]

Danish Standards [DS] and Recommendations [DS/R] are issued in Danish with English subtitles. English translations are available for documents marked [E].

DS 1000 - 1968 Etageboligbyggeri--Højdemål i normaletager [Vertical dimensions in multi-storey housing] (4 pages A4) 3rd Edition

DS 1003 - 1973 Vinduer--Hulmål [Windows--Wall openings] (2 pages A4) 2nd Edition

DS 1010.1-1975 Modulkoordinering for byggeriet--Terminologi [Modular co-ordination in building--Vocabulary] (7 pages A4)
The standard is based upon ISO 1791, but deletes some terms. ISO 1971 is attached in its entirety as an appendix.
[Replaces DS 1010-1958 and DS 1011.1 and DS 1011.2]

DS 1010.2-1975 Modulkoordinering for byggeriet--Principper og regler [Modular co-ordination in building--Principles and rules] (5 pages A4)
The standard is in principle in accordance with ISO 2848; however, the main sections from ISO 1006 and parts of 1040 have been added. Some editorial adjustments have been made.
[Replaces DS 1010-1958 and DS 1011.1 and DS 1011.2]

DS 1011.3-1958 Modulregler for byggeriet--Dimenionering af modulelementer [Modular rules--Dimensioning of modular components] (2 pages A4)

DS 1012-1974 Malafstætning på byggepladsen [Marking out of measurements on the site] (4 pages A4) 2nd Edition

DS 1028.1-1968 Indvendige, énfløjede døre--Hulmål [Single-leafed interior doors--Wall openings] (4 pages A4) [Replaces DS 1028]

DS 1028.2-1968 Indvendige, énfløjede døre af trae--Karm- og dørplademål [Single-leafed interior doors of wood] (2 pages A4) [Replaces DS 1028]

DS 1028.3-1969 Indvendige, énfløjede døre af træ--Kvalitetsbestemmelser [Interior doors of wood--Quality requirements] (2 pages A4)
[Replaces DS 1028]

DS/R 1038-1974 Dækkomponenter af beton--Bygge- og basismål [Concrete components for floor slabs--Co-ordinating and basic sizes] (1 page A4) 2nd Edition

DS/R 1039-1974 Vægkomponenter af beton til bærende indvendige vægge--Bygge- og basismål [Concrete components for interior load bearing walls--Co-ordinating and basic sizes] (3 pages A4) 2nd Edition

DS/R 1040-1968 Trapperum for toløbstrapper [Staircase for double-flight stairs] (5 pages A4) 2nd Edition

DS 1041 - 1968 Byggeblokke--Mål og forbandter [Modular dimensions of block-components] (6 pages A4)

DS 1043 - 1971 Køkkenkomponenter [Kitchen components] (2 pages A4)

DS 1045 - 1965 Isoleringsruder--Hermetisk forseglede dobbeltruder--En-rammede vinduer [Double pane sealed units] (1 page A4)

DS/R 1046-1974 Gulvoverfladers højdeplacering [Level of floors] (2 pages A4) 2nd Edition

DS/R 1047-1966 Elevatorskakte m.v. til etageboligbyggeri [Lift wells, etc., in multi-storey buildings] (2 pages A4)

DS 1048 - 1966 Normalmurværk og modulprojektering [Normal brickwork and modular co-ordination] (2 pages A4)

DS/R 1049-1966 [E] Bærende vægge og dæk--Placering af komponenter [Structural walls and floors--Placing of components] (6 pages A4]

DS/R 1050-1973 Tolerancer i byggeriet--Anvendelse af måltolerancer [Application of dimensional tolerances in building] (37 pages A4) 2nd Edition

DS/R 1075-1969 Horisontale præferencemål for byggeri [Preferred horizontal dimensions for building] (2 pages A4)

DS/R 1076-1970 [E] Vertikale præferencemål for byggeri [Preferred vertical dimensions for building] (1 page A4)

DS/R 1077-1970 Halbyggeri--Horisontale præferencemål [Industrial buildings--Preferred horizontal dimensions] (4 pages A4)

DS 1080 - 1969 Udvendige døre--Hulmål, karm- og dørplademål [Exterior doors--Sizes of openings, frames and doorleaves] (2 pages A4)

DS/R 1083-1974 Bærende tagkomponenter--Præferencemål, vederlag, mærkning [Roofs--Loadbearing units--Preferred sizes, bearing, marking] (2 pages A4)

DS/R 1085-1972 Skolebygninger--Planlægningsmodul og præferencemål [School buildings--Planning module and preferred dimensions] (2 pages A4)

DS/R 1086-1972 Plejehjem--Planlægningsmodul og præferencemål [Nursing homes--Planning module and preferred dimensions] (2 pages A4)

DS/R 1087-1972 Kontorbygninger--Planlægningsmodul og præferencemål [Office buildings--Planning module and preferred dimensions] (2 pages A4)

DS/R 1100-1973 Tolerancer i byggeriet--Præferencetal for tolerancer [Tolerances--Preferred sizes] (2 pages A4)

DS/R 1101-1974 Pladeformede bygningskomponenter til dæk og til bærende og ikke-bærende indvendige vægge--Præferencemål [Large panels for load bearing and non-bearing interior walls--Preferred sizes] (2 pages A4)

PART 5.4 FINLAND

Suomen Standardisoimisliitto r.y. [SFS]
P.O. Box 205
SF-00121 Helsinki 12
Finland/Suomi

[Information Source: SFS-Luettelo [Catalogue] 1977 and Supplement; and, NBS Collection of Internatio al/National Standards]

Finnish standards are issued in the Finnish language with English subtitles. English translations are available for documents marked [E].

SFS 2434 [1975] [E] Asunto--Hygieniatila--Mitoitus [Dwelling--Hygiene spaces--Dimensioning] (7 pages A4)

SFS 2437 [1974] Asuinrakennusten moduulijärjestely runkovyöhykkeiden paksuudet ja keskinäiset etäisyydet vaakasuunnassa [Horizontal controlling dimensions for residential buildings, widths and spacing of controlling zones for columns and loadbearing walls] (2 pages A4)

SFS 2438 [1975] Moduulijärjestely--Runkovyöhykkeiden paksuudet ja keskinäiset etäisyydet vaakasuunnassa [Modular co-ordination--Widths and spacing of controlling zones for columns and loadbearing walls] (4 pages A4)

SFS 2440 [1975] Moduulijärjestely--Rakkenusten kerroskorkeudet [Modular coordination--Storey heights] (2 pages A4)

SFS 3303 [1978] Ikkunan ja ikkunaoven moduuliset koot [Modular sizes for windows and window doors] (3 pages A4)

SFS 3315 [1978] Rakkenusalan mittajärjestely--osamoduuli 0,5M [Dimensional coordination of buildings--Submodule 0.5M] (3 pages A4)

SFS 3317 [1978] Rakkenusalan mittajärjestely--Saumaosuuksien mitat [Dimensional coordination of buildings--Sizes of margins] (2 pages A4)

SFS 3501 [1975] Moduulijärjestely--Käsitteistö--Pohjoismainen [Modular co-ordination--Vocabulary--Nordic] (4 pages A4)

SFS 3502 [1975] Moduulijärjestely--Tavoitteet ja periaatteet [Modular co-ordination--Principles and rules] (6 pages A4)

SFS 3695 [1976] Asunto--Saunan pesuhuone--Mitoitus [Dwelling--Washroom of sauna--Dimensioning] (7 pages A4)

SFS 3696 [1976] Moduulijärjestely--Lattian viitetaso [Modular coordination--Reference plane for vertival dimensions] (2 pages A4)

SFS 3697 [1976] Asuinrakennuksen moduuliset kerros-, huone- ja välipohjakorkeudet Modular coordination--Storey heights, room heights for residential buildings] (2 pages A4)

SFS 3743 [1976] Moduulijärjestely--Kantamoduuli ja kertomoduulit [Modular coordination--Basic module and multimodules] (2 pages A4)

SFS 4081 [1977] Ovi--Moduuliset koot [Doorset--Modular sizes] (6 pages A4)

SFS 4283 [1978] Rakennusalan mittajärjestely--Pienten ulottovuuksien perusmitat [Dimensional coordination of buildings--Basic sizes for small dimensions] (1 page A4)

Standards referencing modular spaces and building elements or components:

SFS 2432 [1974] [E] Asuminen--Henkilökohtainen hygienia--Toimintojen tilantarve [Activities in dwellings--Space requirements for personal hygiene] (4 pages A4)

SFS 2433 [1974] [E] Asuminen--Tekstiilien hoito--Toimintojen tilantarve [Activities in dwellings--Space requirements for textile care] (8 pages A4)

SFS 2435 [1974] [E] Asuminen--Ruokatalous--Toimintojen tilantarve [Activities in dwellings--Space requirements for food storage and preparation] (11 pages A4)

SFS 2436 [1974] [E] Asuminen--Ruokailu--Toimintojen tilantarve [Activities in dwellings--Space requirements for taking of meals (5 pages A4)

SFS 3216 [1975] Vesikaton pääkannate--Moduuliset koot [Roofs--Loadbearing units--Modular sizes] (5 pages A4)

SFS 3482 [1975] [E] Asunto--Keittiö--Kalusteiden määrä [Dwelling--Kitchen--The amount of fittings] (3 pages A4)

SFS 3694 [1976] Asuminen--Kotitalouden tekstiilien ja jalkineiden säilytys--Tilantarve [Activities in dwellings--Space requirements for textile and footwear storage] (4 pages A4)

SFS 3744 [1976] Asuintalohissit--Konehuone kuilun yläpuolella--Mitat [Lifts in residential buildings--Machine room above the well--Dimensions] (7 pages A4)

SFS 3818 [1976] Sähkövedenlämmittimet--Liittymismitat [Electric water heaters--Coordinating sizes] (3 pages A4)

SFS 3870 [1976] Potilashissit--Konehuone kuilun yläpoulella--Mitat [Lifts in hospitals--Machine room above the well--Dimensions] (7 pages A4)

SFS 4002 [1977] Puuristik kokannate--Naulalevyillä koottu [Roof truss--Wooden--Nail plate joints] (8 pages A4)

SFS 4079 [1977] Muiden kuin asuinrakennusten hissit--Konehuone kuilun yläpuolella--Mitat [Lifts in other than residential buildings--Machine room above the well--Dimensions] (7 pages A4)

Standards dealing with joints, tolerances and deviations:

SFS 2490 [1971] Mitat ja toleranssit rakennusalalla--Käsitteitä [Measures and tolerances in building--Definitions of concepts] (3 pages A4)

SFS 3305 [1978] Rakennusmittaus--Pisteiden määrittäminen ja paikalleenmittaaminen--Menetelmät ja sallitut poikkeamat [Measurement methods for building--Setting out and measurement--Procedures and permissible measuring deviations] (4 pages A4)

SFS 3521 [1975] Rakennuksen saumat--Nimistö [Joints in building--Vocabulary] (4 pages A4)

SFS 3874 [1977] Rakennusalan toleranssit--Suositeltavat lukuarvot [Tolerances for building--Preferred sizes for tolerances] (1 page A4)

PART 5.6 FRANCE

Association Française de Normalisation [AFNOR]
Tour Europe
Cedex 7
92080 Paris La Defense
France

[Information Source: Catalogue Normes Françaises 1979; and,
NBS Collection of International/National Standards]

French Standards (Normes Françaises) are issued in French.

NF P 01-001 (July 1974) Dimensions des constructions--Coordination modulaire--Module de base [Dimensions in buildings--Modular coordination--Basic module] (3 pages A4)

Replaces NF P 01-001 "Modulation" of September 1942, and is in concurrence with ISO 1006.

NF P 01-101 (July 1964) Dimensions des constructions--Dimensions de coordination des ouvrages et des éléments de construction (19 pages 210 x 270 mm)

PART 5.6 Federal Republic of GERMANY

Deutsches Institut für Normung [DIN]
Burggrafenstraße 4-10
Postfach 1107
D-1000 Berlin 30
Germany/Deutschland

[Information Source: DIN Katalog 1979; and,
NBS Collection of International/National Standards]

German standards [Deutsche Normen] are published in German with English subtitles and French subtitles in recent standards. English translations are available for documents marked [E].

DIN 18 000 Part 1 (November 1973) — Modulordnung im Bauwesen--Grundlagen [Modular co-ordination in building--Principles] (1 page A4)

International agreements in modular co-ordination [ISO R/1006 and ISO R/1040/I and 1040/II] are accepted into German standards with specific reference to the basic module M = 100 mm, and horizontal multimodules of 3M (300 mm), 6M (600 mm), and 12M (1200 mm).

DIN 18 000 Part 2 (March 1976) — Modulordnung im Bauwesen--Begriffe [Modular co-ordination in building--Terms and definitions] (3 pages A4)

Sets down terms and definitions, based on ISO 1791, including a table of principal terms in German, English and French.

DIN 18 000 Part 3 (March 1976) — Modulordnung im Bauwesen--Anwendungsregeln [Modular co-ordination in building--Rules for application] (3 pages A4)

References ISO 2848.

DIN 18 000 Part 4 (March 1978) — Modulordnung im Bauwesen--Vorzugsmaße [Modular co-ordination in building--Preferred dimensions]

DIN 18 000 Part 10 (March 1978) — Modulordnung im Bauwesen--Vertikale Koordination; Ergänzung zu DIN 18 000 Teil 1 [Modular co-ordination in building--Vertical co-ordination; Supplement to DIN 18 000 Part 1]

DIN 18 000 Beiblatt (February 1977) — Modulordnung im Bauwesen--Erläuterungen, Beispiel [Modular co-ordination in building--Explanations, example] (8 pages A4)
Supplement contains information additional to Parts of DIN 18 000.

DIN 18 011 (March 1967) — Stellflächen, Abstände und Bewegungsflächen im Wohnungsbau [Areas required for furniture, etc., spacings and activity spaces in housing] (3 pages A4)

Contains minimum dimensions, most of which are modular, as well as recommended dimensions for spaces in dwellings.

DIN 30 798 Part 1 (June 1978) — Modulsysteme--Begriffe [Modular systems--Concepts]

DIN 30 798 Part 2 (June 1978) — Modulordnungen--Grundsätze [Modular co-ordination--Principles]

DIN 18 155 Part 2 (March 1976) — Feinkeramische Fliesen--Formen, Maße, Kennzeichnung, Bezeichnung [Ceramic tiles--Designs, dimensions, marking, designation] (3 pages A4)
Includes reference to DIN 18 000 in explanations.

DIN 18 201 (April 1976) — Maßtoleranzen im Bauwesen--Begriffe, Grundsätze, Anwendung, Prüfung [Dimensional tolerances for building--Definitions, principles, application, testing] (3 pages A4)

DIN 18 202 Part 1 (March 1969) — Maßtoleranzen im Hochbau--Zulässige Abmaße für die Bauausführung--Wand- und Deckenöffnungen, Nischen, Geschoß- und Podesthöhen [Dimensional coordination in building construction--Permissible dimensional deviations of the structure--Wall and floor openings, recesses, storey and landing heights] (3 pages A4)

DIN 18 202 Part 2 (June 1974) Pre-standard — Maßtoleranzen im Hochbau--Ebenheitstoleranzen für Oberflächen von Wänden, Deckenunterseiten und Bauteilen [Dimensional tolerances for building construction--Planeness tolerances for surfaces of walls, undersides of ceilings and components] (2 pages A4)

DIN 18 202 Part 3 (Sept. 1970) Pre-standard — Maßtoleranzen im Hochbau--Toleranzen für die Ebenheit der Oberflächen von Rohdecken, Estrichen und Bodenbelägen [Dimensional coordination in building construction--Permissible dimensional deviations of the structure--Surface of ceilings, intermediate layers and floor finishes] (2 pages A4)

DIN 18 202 Part 4 (June 1974) — Maßtoleranzen im Hochbau--Abmaße für Bauwerksabmessungen [Dimensional tolerances for building construction--Dimensional deviations of dimensions in building] (4 pages A4)

DIN 18 202 Part 4 Supplement 1 (August 1977) — Maßtoleranzen im Hochbau--Abmaße für Bauwerksabmessungen--Erläuterung zum Bezugsverfahren [Explanations to the reference method] (2 pages A4)

DIN 18 203 Part 1 (June 1974) — Maßtoleranzen im Hochbau--Vorgefertigte Teile aus Beton und Stahlbeton [Dimensional tolerances in building construction--Finished components of concrete and reinforced concrete] (2 pages A4)

DIN 18 203 Part 2 (June 1977) [E] — Maßtoleranzen im Hochbau--Vorgefertigte Teile aus Stahl [Dimensional tolerances in building construction--Finished components of steel]

Not in line with international standards or recommendations:

DIM 4172 [3rd Ed.] (July 1955) [E] — Maßordnung im Hochbau [Dimensional coordination in building]
States preferred dimensions and preferred number series for use in building and is based on preferences derived from an octametric system which emphasizes multiples of 250 mm and 125 mm. Suggests preferred numbers for dimensions smaller than 25 mm, taken directly from the ISO R10 series.

PART 5.7 GREECE

Hellenic Organization for Standardization [ELOT]
Didotou 15
Athens 144
Greece/ΕΛΛΑΣ

[Information Source: NBS Collection of International/National Standards]

ENO P 01-001-1959 Ἡ συσχετισμένη τυποποίησις τῶν δομικῶν στοιχείων **Λεξιλόγιον**
[Modular Coordination in Building--Glossary] 4 pages

ENO P 01-002-1959 **Ἡ συσχετισμένη τυποποίησις τῶν δομικῶν στοιχείων** ΟΡΟΛΟΓΙΑ
[Modular Coordination in Building--Terminology] 3 pages

PART 5.8 ITALY

Ente Nazionale Italiano di Unificazione [UNI]
Piazza Armando Diaz 2
I 20123 Milano
Italy/Italia

[Information Source: UNI Elenco delle Pubblicazzioni n.33 1976 and
Supplemento al n.33 1977; and,
NBS Collection of International/National Standards]

Italian Standards are issued in Italian; recent documents with English subtitles.

Unificazione italiana

UNI 2951 (June 1949)	Unificazione coordinata nell'edilizia--Sistema del modulo (2 pages A4)
UNI 3115 (Febr. 1951)	Unificazione coordinata nell'edilizia--Principi generali per le tolleranze nel coordinamento delle constuzioni con il sistema del modulo (2 pages A4)
UNI 3140 (Febr. 1951)	Unificazione coordinata nell'edilizia--Altezze di piano negli edifici residenziali (2 pages A4)
UNI 7362-74 (December 1974)	Mobili ed apparecchi di cucina--Dimensioni di coordinamento [Kitchen equipment--Co-ordinating sizes] (2 pages A4) Refers to conformance with work in progress in ISO TC 59.

PART 5.9 The NETHERLANDS

Nederlands Normalisatie-instituut [NNI]
Polakweg 5
P.O. Box 5810
2280 HV Rijswijk ZH
Netherlands

[Information Source: NNI Calalogus 1975 + Aanvulling 1 (to July 1976)
NBS Collection of International/National Standards]

Netherlands standards [Nederlandse norms] are issued in Dutch with English subtitles.

NEN 2880 (November 1977) Modulaire coördinatie bij het bouwen--Begripsomschrijvingen en regels voor de plaats- en maatbepaling van modulaire elementen [Modular co-ordination in building--Terminology and rules for the determination of location and dimensions of modular elements] (102 pages A4)
[Supersedes NEN 5700 and NEN 5701]

The standard brings a novel and fundamentally different approach to modular coordination, which is the result of the development of proposals by the Foundation for Architectural Research [SAR], and their application in various housing projects over a decade.
The concepts revolve around the use of a [modular] tartan grid (or band grid), with specific rules for the positioning of element groups and junctions between elements (joints).
The standard is well illustrated.
The standard claims to be in accord with ISO 1006, 1040, R 1790, 1791, and 2848.

NEN 5702 (August 1965) Modulaire coördinatie bij het bouwen--Tolerantiestelsel--Begripsbepalingen [Modular co-ordination in building--System of tolerances] (4 pages A4)

Standards including modular sizes of building products:

NEN 2489 (October 1976) Metselbaksteen [Bricks of fired clay for masonry] (44 pages A4)
Discusses modular formats on page 24, including European formats.

NEN 2637 (August 1972) Maten van binnedeuren [Sizes of interior doors] (4 pages A4)

Shows modular formats on page 3.

NEN 3317 (December 1967) Functionele afmetingen van trappen voor gemeenschappelijke trappehuizen [Functional dimensions of stair cases for common staircase halls (staircase wells)] (2 pages A4)

PART 5.10 NORWAY

Norges Standardiserungsforbund [NSF]
Haakon VII's gt. 2
N--Oslo 1
Norway

[Information Source: Norsk Standard Katalog 1978; and,
NBS Collection of International/National Standards]

Norwegian standards are issued in Norwegian with English subtitles.

NS 1000 [1961] Modulsamordning i bygningsindustrien--Grunnleggende prinsipper [Modular co-ordination in the building industry-- Basic principles] (8 pages A4)

NS 1001 [1967] 3M-planmodul for horisontale mål i råbygg [3M-horizontal module for planning of buildings] (1 page A4)

NS 1003 [1970] Målsamordning av mindre hus i en eller to etasjer [Modular co-ordination of smaller one and two storey buildings] (8 pages A4)

NS 1456 [1967] Mål på åpninger for innsetting av dører og vinduer [Dimensions for wall openings of doors and windows] (4 pages A4)

NS 3033 [1970] Kjøkkeninnredninger og garderobeskap--Generelle bestemmelser og mål [Kitchen equipment and wardrobes--General requirements and sizes] (2 pages A4)

NS 3149 [1976] Dører--Størrelser [Doors--Co-ordinating sizes] (2 pages A4)

NS 3203 [1974] Vinduer og vindusdører--Størrelser [Windows and French doors--Co-ordinating sizes] (2 pages A4)

NS 3441 [1967] Plateformede bygningskomponenter til dekker og til bærende og ikke-bærende innvendige vegger--Preferansemål [Large panels for floors and load-bearing and non-bearing interior walls--Preferred sizes] (1 page A4)

NS 3461 [1974] Toleranser i bygningsindustrien--Grunnleggende begreper og terminologi--Midlertidig [Tolerances in building--Basic terms and terminology--Tentative] (12 pages A4)

Standards containing modular building elements and components:

NS 544 [1964] Skallmurblokker av betong--Normalblokker og endeblokker [Precast concrete blocks for light walls--Normal and flat ended blocks] (5 pages A4)

NS 781 [1953] Innvendige rette trapper av brannfast materiale--Hovedmål [Internal straight stairs of fireproof material--Main dimensions] (2 pages A4)

NS 790 [1954] Innvendive trapper av tre--180° svingtrapp--Etasjehøyde 2800 mm og 2700 mm [Internal winding wood staircase--180°--Dimensions] (1 page A4)

NS 791 [1954] Innvendige trapper av tre--90° svingtrapp--Etasjehøyde 2700 mm og 2600 mm [Internal winding wood staircase--90°--Dimensions (1 page A4)

NS 792 [1954] Innvendige trapper av tre--90°/90° svingtrapp--Etasjehøyde 2700 mm og 2600 mm [Internal winding wood staircase--90°/90°] (1 page A4)

NS 793 [1954] Innvendige trapper av tre--90° repostrapp--Etasjehøyde 2700 mm og 2600 mm [Internal wood staircase quarterspace landing] (1 page A4)

NS 794 [1954] Innvendige trapper av tre--Dobbeltløpet rett repostrap--Etasjehøyde 2800 mm og 2700 mm [Internal wood staircase with halfspace landing] (2 pages A4)

NS 835 [1953] Personheiser--Maskinrom på topp og motvekt bak kupe--Hovedmål for sjakt, kupe og maskinrom [Lifts--Machine room on top floor and counterweight behind lift car--Main dimensions for shaft, car and machine room] (1 page A4)

NS 836 [1953] Personheiser--Maskinrom på topp og movekt på side av kupe [Lifts--Main dimensions--Machine room on top floor and counterweight on side of car] (1 page A4)

NS 837 [1953] Vare- og personheiser--Alminnelige dimensjoneringsregler for sjakter [Lifts for goods and passengers--Main dimensions of lift well] (1 page A4)

NS 1130.Del 1 Part 1 [1967] Innvendige dører av tre--Mål på glatte dører uten overfals [Midlertidig] [Interior wooden doors--Dimensions for flush, non rebated doors--Interim] (2 pages A4)

NS 1130.Del 2 Part 2 [1968] Innvendige dører av tre--Mål for baderomsdører [Midlertidig] [Interior wooden doors--Dimensions for bathroom doors] (3 pages A4)

NS 1458 [1967] Vinduer og vindusdører av tre--Utvendige karmmål UJF med fylling og utvendig panel [External dimensions for wooden windows and French door frames] (4 pages A4)

NS 3000 [1967] Teglstein [Clay bricks] (7 pages A4) [Includes modular format]

NS 3012 [1968] Betonghullblokk [Hollow concrete blocks] (4 pages A4)

NS 3014 [1968] Fasadestein av betong [Facing concrete bricks] (4 pages A4)

NS 3015 [1968] Forskalingsblokk [Formwork concrete block] (4 pages A4)

NS 3016 [1970] Gassbetong (trykkherdet lettbetong)--Blokker for liming [Lightweight cellular concrete blocks (Autoclaved aerated concrete) (7 pages A4)

NS 3019 [1970] Tak- og gulvelementer av gassbetong (trykkherdet lettbetong) [Roof and floor units--Lightweight cellular concrete] (8 pages A4)

NS 3020 [1970] Liggende veggelementer av gassbetong (trykkherdet lettbetong) Horizontal wall units--Lightweight cellular concrete] (3 pages A4)

NS 3021 [1970] Isolasjonselementer av gassbetong (trykkherdet lettbetong) Insulation units--Lightweight cellular concrete (Autoclaved aerated concrete) (3 pages A4)

NS 3025 [1969] Treullcementplater [Midlertidig] [Wood wool slabs--Interim] (8 pages A4)

NS 3440 [1974] Takbærere--Mål, merking [Roofs--Loadbearing units--Dimensions] (4 pages A4)

PART 5.11 PORTUGAL

Repartição de Normalização [IGPAI]
Avenida de Berna 1
Lisboa-1
Portugal

[Information Source: Catálogo das Normas Portuguesas 1975
Centro de Normalização Lista Numérica 1975-1976 e 1977]

Portuguese standards are issued in Portuguese.

NP 88 - 1956 Modulação das Construções--Directivas fundamentais

PART 5.12 SPAIN

Instituto Nacional de Racionalización
y Normalización [IRANOR]
Serrano 150
Madrid 6
Spain/Espana

[Information Source: IRANOR Catálogo Provisional de Normas UNE 1978
NBS Collection of International/National Standards]

Spain does not have national standards dealing directly with the principles or application of modular coordination in building, but a number of UNE (Una Norma Española) Standards include product dimensions that fit with preferences used in a modular building environment.

UNE 24 007 (3.51) Azulejos para revestir paredes

UNE 24 017 (11.54) Escaleras de madera de peldaños altos y tramos rectos, para viviendas

UNE 24 018 (11.54) Escaleras de madera de peldaños bajos y tramos rectos, para viviendas

UNE 24 019 (11.54) Escaleras de madera de tramos rectos y peldaños altos, con los últimos en abanico, para viviendas

UNE 24 020 (11.54) Escaleras de madera de tramos rectos y peldaños bajos, con los últimos en abanico, para viviendas

UNE 24 021 (11.54) Escaleras de madera de peldaños altos, con los superiores en abanico, para viviendas

UNE 24 022 (11.54) Escaleras de madera de peldaños bajos, con los superiores en abanico, para viviendas

UNE 41 004 (7.55) Calidades y medidas de los ladrillos de arcilla cocida

UNE 41 007 (10.52) Calidades y medidas de las planchas lisas y onduladas de amianto-cemento

UNE 41 026 (1.55) Pizarra para cubiertas

UNE 41 061 (7.55) Ladrillos sílico-calcáreos

PART 5.13 SWEDEN

Standardiseringskommissionen i Sverige [SIS]
Tegnérgatan 11
Box 3295
S-10366 Stockholm
Sweden/Sverige

[Information Source: Register över Svensk Standard 1978--SIS
Katalog över Handböcker 1978--SIS
NBS Collection of International/National Standards]

Swedish standards are issued in Swedish with English subtitles. A number of Swedish standards are also translated into English, either as bilingual editions or in separate editions. A small number of standards are also issued in French or German. English translations are available for documents marked [E]. Swedish Standards issued since 1 January 1978 use the prefix SS; earlier versions use SIS and other prefixes.

SIS 05 01 00 (1975) 2nd Edition — Modulkoordinering--Terminologi [Modular co-ordination--Vocabulary] (pages A4)

SIS 05 01 01 (1975) 3rd Edition — Modulkoordinering--Principer och regler [Modular co-ordination--Principles and rules] (pages A4)

SIS 05 01 02 (1972) 2nd Edition [E] — Modulsamordning--Regler för modulprojektering [Modular co-ordination--Rules for modular planning] (5 pages A4)

SIS 05 01 03 (1972) [E] — Modulsamordning--Våningshöjder [Modular co-ordination--Storey heights] (1 page A4)

SIS 05 01 04 (1975) 2nd Edition — Modulkoordinering--Hallbyggnader--Horisontala stommått [Modular co-ordination--Industrial buildings--Horizontal sizes for loadbearing structure] (3 pages A4)

SIS 05 01 16 (1970) — Modulsamordning--Undertak--Horisontala mått [Modular co-ordination--Suspended ceilings--Horizontal dimensions] (3pages A4)

SIS 05 01 17 (1973) — Modulsamordning--Inredning [Modular co-ordination--Fittings] (3 pages A4)

SIS 05 01 18 (1975) — Modulkoordinering--Installationer [Modular co-ordination--Services and Drainage] (4 pages A4)

SIS 05 02 11 (1971) — Byggtoleranser--Toleransvidder [Tolerances for Building--Series of tolerance widths] (1 page A4)

SIS 05 02 12 (1974) — Byggtoleranser--Toleranssystem [Tolerances for Building--Tolerance system] (11 pages A4)

SIS 05 02 13 (1974) — Byggtoleranser--Samspel mellan toleranser [Tolerances for building--Interaction among tolerances] (4 pages A4)

SIS 05 02 14 (1974) — Byggtoleranser--Samspel mellan toleranser--Formler [Tolerances for building--Interaction formulas] (29 pages A4)

SIS 05 02 15 (1974) [E] Byggtoleranser--Terminologi [Tolerances for building--Terminology] (10 pages A4) [E-7 pages A4]

SIS 05 05 01 (1973) Toleranser--Grundlaggande terminologi [Basic terminology on tolerances(general)] (5 pages A4)

Standards for modular elements, assemblies and components in building:

SIS 22 01 10 (1972) Mursten--Modulformat--Grundläggande mått [Modular bricks--Basic sizes] (1 page A4)

SIS 22 01 11 (1975) Mursten--Generella fordringar provning [Bricks--General requirements--Testing] (7 pages A4)

SIS 81 20 07 (1973) Lättbetongprodukter--Liggande vaggelement--Grundläggande mått [Lightweight concrete--Horizontal wall components--Basic sizes] (1 page A4)

SIS 81 20 08 (1973) Lättbetongprodukter--Takelement--Grundläggande mått [Lightweight concrete--Roof components--Basic sizes] (1 page A4)

SIS 81 20 09 (1973) Lättbetongprodukter--Bjälklagselement--Grundläggande mått [Lightweight concrete--Floor components--Basic sizes] (1 page A4)

SIS 81 20 50 (1975) Bjälklags- och innerväggselement--Grundläggande mått [Floor components and interior wall components--Basic sizes] (1 page A4)

SIS 81 21 01 (1971) Sandwichelement av betong--Mått [Concrete sandwich panels--Dimensions] (pages A4)

SIS 81 21 02 (1973) Lättbetongprodukter--Liggande väggelement av porbetong--Mått [Autoclaved aerated concrete--Horizontal wall components--Sizes] (2 pages A4)

SIS 81 21 04 (1973) Lättbetongprodukter--Stående, bärande väggelement av porbetong--Mått [Autoclaved aerated concrete--Vertical loadbearing wall components--Sizes] (3 pages A4)

SIS 81 22 01 (1975) Lättbetongprodukter--Liggande väggelement av lättklinkerbetong--Mått [Lightweight aggregate concrete--Horizontal wall components--Sizes] (2 pages A4)

SIS 81 22 02 (1975) Lättbetongprodukter--Takelement av lättklinkerbetong--Mått [Lightweight aggregate concrete--Roof components--Sizes] (2 pages A4)

SIS 81 22 03 (1975) Lättbetongprodukter--Bjälklagselement av lättklinkerbetong--Mått [Lightweight aggregate concrete--Floor components--Sizes] (2 pages A4)

SIS 81 24 01 (1972) Bjälklagselement av betong--Grundläggande mått [Concrete floor slabs--Basic sizes] (1 page A4)

SIS 81 24 02 (1974) 2nd Edition Bjälklagselement av betong med plan oversida och undersida--Mått och form [Concrete floor slabs with plane upper and lower surfaces--Dimensions and form] (4 pages A4)

SIS 81 24 03 (1974) 2nd Edition Bjälklagselement av betong med TT-format tvärsnitt. Mått och form [Concrete double-T floor slabs--Dimensions and form] (3 pages A4)

SIS 81 24 07 (1973) Lättbetongprodukter--Takelement av porbetong--Mått [Autoclaved aerated concrete--Roof components--Sizes] (2 pages A4)

SIS 81 24 08 (1973) Lättbetongprodukter--Bjälklagselement av porbetong--Mått [Autoclaved aerated concrete--Floor components--Sizes] (2 pages A4)

SIS 81 26 01 (1970) Tvärmått för rektangulära betongpelare [Cross-sectional dimensions of rectangular concrete columns] (2 pages A4)

SIS 81 26 02 (1971) Tvärmått för rektangulära betongbalkar [Cross-sectional dimensions of rectangular concrete beams] (2 pages A4)

SIS 81 26 03 (1973) Flänsbalkar av betong--Tvärmått [Flanged concrete beams--Cross-sectional dimensions] (2 pages A4)

SIS 81 32 01 (1974) 2nd Edition Trappor--Terminologi [Stairs--Terminology] (3 pages A4) (includes titles of terms in English)

SIS 81 32 21 (1967) Trappor--Trappelement med bärende kupa för tvåloppstrappa--Mått [Stairs--Prefabricated stair units carried by slabs, for one-landing floor-to-floor staircases--Dimensions] (4 pages A4)

SIS 81 32 22 (1967) Trappor--Trappelement med bärende vangstycken för tvåloppstrappa--Mått [Stairs--Prefabricated stair units carried by strings for one-landing floor-to-floor staircases--Dimensions] (2 pages A4)

SIS 81 34 05 (1973) Balkongplan och loftgångsplan--Grundläggande mått [Balcony floors--Coordinating sizes] (2 pages A4)

SIS 81 34 06 (1973) Betongelement för balkongplan och loftgångsplan--Tillverkningsmått och detaljer [Concrete balcony floor slabs--Work sizes and details] (4 pages A4)

SIS 81 61 01 (1973) Lättbetongprodukter--Stående, icke bärande väggelement av porbetong--Mått [Autoclaved aerated concrete--Vertical non-loadbearing wall components--Sizes] (2 pages A4)

SIS 81 70 51 (1972) 2nd Edition Luckor av stål och metall--Sidhängda luckor--Grundläggande mått [Small steel and metal doors, hinged--Basic sizes] (1 page A4)

SIS 81 70 52 (1971) Dörrar--Sidhängda dörrar--Grundläggande mått [Hinged doors--Co-ordinating sizes] (2 pages A4)

SIS 81 70 54 (1974) Garageportar--Grundläggande mått [Garage doors--Basic sizes] (2 pages A4)

SIS 81 70 55 (1974) Industriportar--Grundläggande mått [Industrial doors--Basic sizes] (2 pages A4)

SIS 81 73 03 (1972) Dörrar--Lätta innerdörrar av trä--Mått [Light wooden doorsets--Sizes] (4 pages A4)

SIS 81 73 04 (1973) Dörrar--Innerdörrar av trä med glasöppning--Mått [Wooden doorsets with glazed openings--Sizes] (4 pages A4)

SIS 81 73 05 (1973) Dörrar--Innerdörrar av trä för särskilda funktionskrav--Mått [Wooden doorsets for special functional requirements--Sizes] (5 pages A4)

SIS 81 73 07 (1974) Dörrar--Karmar av trä för rumshöga dörrenheter [Wooden door frames for ceiling height sets] (3 pages A4)

SIS 81 73 09 (1975) 2nd Edition Ytterdörrar för lantbruksbyggnader [External doors for farm buildings] (3 pages A4)

SIS 81 73 24 (1977) Dörrar--Dörrar för fredsanvändning i skyddsrum [Doors for shelters] (5 pages A4)

SIS 81 76 02 (1972) 2nd Edition Dörrar av stål och metall--Sidhängda dörrar och skjutdörrar--Mått [Steel and metal doors--Sizes] (3 pages A4)

SIS 81 76 03 (1972) 2nd Edition Luckor av stål och metall--Sidhängda luckor--Mått [Small steel and metal doors--Sizes] (2 pages A4)

SIS 81 76 04 (1972) 2nd Edition Dörrar av stål och metall--Enkelslagdörrar för hisschakt--Mått--Hissfronter med enkelslagdörr--Mått [Steel and metal doors for lift wells--Sizes] (6 pages A4)

SIS 81 76 05 (1974) Dörrar--Dörrkarmar av stål och metall--Steel and metal door frames] (2 pages A4)

SIS 81 80 50 (1969) Fönstersnickerier--Fönster och fönsterdörrar med kopplade bågar--Grundläggande mått [Wooden window frames with coupled sashes--Basic sizes] (3 pages A4)

SIS 81 80 51 (1969) Fönstersnickerier--Fönster och fönsterdörrar för isolerrutor--Grundlaggande mått [Wooden window frames for sealed units--Basic sizes] (2 pages A4)

SIS 81 81 20 (1975) Fönster för lantbruksbyggnader [Windows for farm buildings] (1 page A4)

SIS 81 82 10 (1972) Släta beklädnadselement av armerad betong--Mått [Plane reinforced concrete cladding panels--Dimensions] (3 pages A4)

SIS 82 21 08 (1971) Badkar [Bath tubs] (2 pages A4)

SIS 82 21 09 (1971) Duschkar [Shower bath tubs] (2 pages A4)

SIS 82 30 41 (1971) Inredning för bostäder--Diskbänksbeslag--Översikt och allmänna bestämmelser [Furnishing and fittings for housing--Sinks--Survey and general requirements] (3 pages A4)

SIS 82 30 52 (1973) Inredning för bostäder--Tvättbänksbeslag och tvättlådor--Storlekar [Furnishing and fittings for housing--Clothes washing sinks and bowls--Overall sizes] (1 page A4)

SIS 82 30 53 (1973) Inredning för bostäder--Tvättbänksbeslag och tvättlådor--Mått och allmänna bestämmelser [Furnishing and fittings for housing--Clothes washing sinks and bowls--Dimensions and general requirements] (3 pages A4)

SIS 82 30 56 (1976) Inredning för förskolor och fritidshem--Diskbänksbeslag JM 18 [Furnishing and fittings for nursery schools--Sink] (1 page A4)

SIS 82 30 58 (1976) Inredning för sjukvårdsbyggnader--Diskbänksbeslag--Sköljlåda [Furnishing and fittings for hospitals--Sink] (1 page A4)

SIS 82 30 59 (1976) Inredning för sjukvårdsbyggnader--Diskbänksbeslag med en disklåda [Furnishing and fittings for hospitals--Sink] (1 page A4)

SIS 82 30 60 (1975) Inredning för sjukvårdsbyggnader--Diskbänksbeslag med två dislådor [Furnishing and fittings for hospitals--Double sink] (1 page A4)

SIS 82 71 01 (1972) 2nd Edition Luftdon--Ytterväggsgaller med fästram [Framed external wall gratings] (2 pages A4)

SIS 82 71 02 (1972) Luftdon--Ytterväggsgaller utan fästram [External wall gratings] (2 pages A4)

SIS 82 72 07 (1975) Ventilationskanaler av plåt--Kanaldetaljer--Koordineringsmått [Sheet metal ventilating ducts--Duct components--Co-ordinating sizes] (16 pages A4)

PART 5.14 SWITZERLAND

Schweizerische Normen-Vereinigung [SNV]
Kirchenweg 4
8032 Zürich
Switzerland/Schweiz

[Information Source: NBS Collection of International/National Standards]

Swiss standards are issued by a number of standards writing organizations which have united in the SNV. The standards for the construction industry are prepared by CRB (Centre suisse d'études pour la rationalisation du bâtiment), 8001 Zürich, Torgasse 4.

CRB/SNV standards are issued in three-language editions: German, French and Italian.

SNV 501 500 [1965] Die Modul-Ordnung in Hochbau [Modular Coordination in Building] (3 pages A4)

SNV 501 501 [1969] Terminologie: Massordnungen, Modul-Ordnung [Terminology: Dimensional co-ordination, modular co-ordination] (6 pages A4)

Supplement SNV 501 501 [1969] Contains English translations of terms, references to other national standards dealing with terminology, and a bibliography.

SNV 501 502 [1969] Terminologie: Massbezeichnungen, Toleranzen, Passungen [Terminology: Dimension lines, tolerances, adjustments] (5 pages A4)

Supplement SNV 501 502 [1969] Contains English translations of terms, references to other national standards dealing with the subject, and a bibliography.

SNV 520 500 [1965] Geschoßhöhen [Storey heights] (2 pages A4)

Supplement SNV 520 500 [1965] Contains references to other national standards dealing with storey heights, and a bibliography.

Standards containing information on modular building parts or components:

SNV 521 501 [1966] Sanitärräume im Wohnbau [Rooms for hygiene and body care in dwellings] (17 pages A4)

SNV 544 500 [1967] Abmessungen von keramischen Wandplatten [Dimensions of ceramic wall tiles] (5 pages A4)

PART 5.15 TURKEY

Turkish Standards Institution (Türk Standardlari Enstitüsü) [TSE]
Necatibey Caddesi 112
Bakanliklar
Ankara
Turkey

[Information Source: 1978 Türk Standardlari Kataloğu
1976 Turkish Standards Catalog [English]
NBS Collection of International/National Standards]

Turkish Standards are issued in the Turkish language, with English subtitles.

TS 735: Yapi Endüstrisinde Modüler Koordinasyon (Bu Standar iptal edilmiş, yerine TS 2014, 2015, 2016, 2017, 2018, 2019 ve 2020 numarali standardlar hazirlanmiştir.)

TS 2014:1975.04 Modüler Koordinasyon--Temel Modül [Modular co-ordination--Basic module]

References ISO 1006-1973 and same title

TS 2015:1975.04 Modüler Koordinasyon Yatay Koordinasyon Boyutlari İçin "Büyük Modüller" [Modular co-ordination--Multimodules for horizontal coordinating dimensions]

References ISO 1040-1973 and same title

TS 2016:1975.04 Modüler Koordinasyon Konutlar İçin Kat Yükseklikleri ve Hacim Yükseklikleri [Modular Co-ordination--Storey heights and room heights for residential buildings]

References ISO 1789-1973 and same title

TS 2017:1975.04 Modüler Koordinasyon--Terimler [Modular Co-ordination--Vocabulary]

References ISO 1791-1973 and same title

TS 2018:1975.04 Modüler Koordinasyon İç ve Diş Kapilar İçin Koordinasyon Boyutlari [Modular co-ordination--Co-ordinating sizes for door sets--External and Internal]

References ISO 2776-1974 and same title

TS 2019:1975.04 Modüler Koordinasyon Binalarda Kullanilan Düz, Rijid Levha ve Panolar İçin Koordinasyon Boyutlari [Modular co-ordination--Co-ordinating sizes for rigid flat sheet boards used in building]

References ISO 2777-1974 and same title

TS 2020:1975.04 Modüler Koordinasyon İlkeler ve Kurallar [Modular co-ordination--Principles and rules]

References ISO 2848-1974 and same title

TS 2316:1976.04 Modüler Koordinasyon Yatay Kontrol Koordinasyon Ölçülerinin Referans Doğrulari [Modular co-ordination--Reference lines of horizontal controlling dimensions]

References ISO/R 1790-1970

PART 6: EASTERN EUROPEAN COUNTRIES

PART 6.1 BULGARIA

State Committee for Standardization [DKC]
at the Council of Ministers
21, 6th September Str.
Sofia
Bulgaria

[Information Source:

BDS 61-1970 (БДС 61—70 Ж02) — Modulna koordinatsiya na rasmerite v sgrado-stroitelstvoto. Osnovni polojeniya (zamenya BDC 61-1964)
(Модулна координация на размерите в сградо-строителството. Основни положения (заменя БДС 61—64))

BDS 5943-1966 (БДС 5943—66 Ж02) — Parametri na oborudvaneto, sglasuvani s edinnata modulna sistema v stroitelstvoto. Terminologiya
(Параметри на оборудването, съгласувани с единната модулна система в строителството. Терминология)

BDS 8270-1970 (БДС 8270—70 Ж02) — Modulna koordinatsiya na rasmerite v sgrado-stroitestvoto. Terminologiya.
(Модулна координация на размерите в сградо- строителството. Терминология)

PART 6.2 CZECHOSLOWAKIA

Úřad pro normalizaci měření [CSN]
Václavské náměsti 19
113 47 Praha 1

[Information Source: Seznam československých státních a oborových norem a norem RVHP [1] & [2]; 1.1.1978

ČSN 73 0005 [1974] Modulová koordinace a unifikace rozměrů ve výstavbě

ČSN 73 0010 [1961] Úchylky a tolerance ve výstavbě (Deviations and tolerance in construction, incl. amendment (a)--1971)
* a 8.71

ČSN 73 0420 [1971] Vytyčovací odchylky stavebnictví--Základní ustanovení (Staking-out deviations in building--fundamental stipulations)

ČSN 73 0421 [1971] Vytyčovací odchylky stavebnich objektů s prostorovou skladbou (Staking-out deviations of buildings and structures with spatial composition)

PART 6.3 GERMAN DEMOCRATIC REPUBLIC [DDR]

Ministerrat der Deutschen Democratischen Republik
Amt für Standardisierung, Meßwesen und Warenprüfung
Berlin
DDR

[Information Source: TGL Verzeichnis Staatlicher Standards der DDR, 1978]

D 7255/01 [10.60] Maßtoleranzen im Bauwesen--Begriffe, Grundtoleranzen, Anwendung, Prüfung.

D 7255/02 [10.60] Maßtoleranzen im Bauwesen--Zuordnung von Bauteilen und Fertigungsverfahren sowie Meßverfahren.

D 8471 [12.67] Maßordnung im Bauwesen--Grundbestimmungen.

D 8472 [12.67] Maßordnung im Bauwesen--Begriffe, Grundtoleranzen, Anwendung, Prüfung.

D 9239/01 [10.60] Maßtoleranzen im Bauwesen--Fenster- und Türöffnungen, Treppenlöcher, Geschoß- und Podesthöhen.

D 12864/01 [04.63] Maßtoleranzen im Bauwesen--Baupassungen; Begriffe, Berechnung, Baupaßsystem.

D 12864/02 [04.63] Maßtoleranzen im Bauwesen--Baupassungen; Baupassungsauswahl, Tabellen.

D 12873 [06.62] Maßtoleranzen im Bauwesen--Fertigteile aus Beton und Stahlbeton.

D 12875 [02.72] Maßtoleranzen im Bauwesen--Fertigteile aus Gips und Anhydrit.

D 12877/02 [11.75] Maßtoleranzen im Bauwesen--Fertigteile aus Holz; Innentüren.

D 12877/03 [12.70] Maßtoleranzen im Bauwesen--Fertigteile aus Holz; Dachtragwerke.

PART 6.4 HUNGARY

Magyar Szabványügyi Hivatal [MSZH]
Postafiók 24
1450 Budapest 9
Hungary/Magyar

[Information Source: MSZ Szabványjegyzék 1977]

MSZ 7651 - 74 Az építési modul alapelvei (2 pages) [*MSZ 7651-61]

MSZ 7652 - 74 Az építési modul terminológiája (6 pages) [*MSZ 7652-61

MSZ 7653 - 74 Az építési modul alkalmazási előírásai (19 pages) [*MI 7653-62]

MSZ 7654 - 74 Az építési modul-méretsorok (7 pages) [*MSZ 7654-62]

MSZ 7655 - 67 Építési modul--Üzemi technológiai berendezések méreteinek modul-koordinálása--Alapfogalmak (2 pages)

MSZ 7656 - 74 Nyílászáró szerkezetek modulméretei (4 pages)

MSZ 7658/2 - 67 Építőipari mérettűrések alapelvei (5 pages)

MSZ 7659 - 65 Építési modul--Ipari épületek főméretei (10 pages) [*MSZ 15899-53]

MSZ 7660 - 66 Építési modul--Mezőgazdasági épületek főméretei (4 pages)

PART 6.5 POLAND

Polski Komitet Normalizacji i Miar [PKNiM]
Ul. Elektoralna 2
00-139 Warszawa
Polska/Poland

[Information Source: 1978 Katalog Polskich Norm]

Grupa VII 02. Normy obliczania i projektowania:

B-02352 (62) Koordynacja wymiarowa w budownictwie. Nazwy i określenia.

B-02353 (62) Koordynacja wymiarowa w budownictwie. Wartości modularne.

B-02354 (62) Koordynacja wymiarowa w budownictwie. Zasady koordynacji modularnej i wymiarowania.

B-02355 (62) Koordynacja wymiarowa w budownictwie. Tolerancje wymiarów elementów budowlanych. Określenia, klasy dokładności i metody sprwwdzania przy odbiorze.

B-02356° (62) Koordynacja wymiarowa w budownictwie. Tolerancje wymiarów elementów budowlanych z betonów.

B-02357 (62) Koordynacja wymiarowa w budownictwie. Tolerancje wymiarów stolarki budowlanej i meblowej oraz elementów budowlanych wykończenia.

B-02358 (62) Koordynacja wymiarowa w budownictwie. Oznaczenia tolerancji wymiarów elementów i tolerancji położenia elementów na rysunkach (projekt PN)

Grupa VII 30. Klasyfikacja, nomenklatura i normy ogólne:

B-91002 (66) Stolarka budowlana. Okna i drzwi balkonowe. Zasady ustalania wymiarów skoordynowanych modularnie.

B-91003 (67) Stolarka budowlana. Drzwi. Zasady ustalania wymiarów skoordynowanych modularnie.

B-91004 (74) Budownictwo. Meble do wbudowania. Zasady wymiarowania modularnego.

PART 6.6 ROMANIA

Institutul Român de Standardizare [IRS]
Casuta Postala 6214
Bucarest 1
Romania

[Information Source: Indicatorul Standardelor de Stat 1977

Modulare şi toleranţe în construcţii:

8381-69 Construcţii agrozootehnice. Deschideri şi travee. Dimensioni.

7009-70 Construcţii civile, industriale şi agrozootehnice. Sistemul ISO de toleranţe în construcţii. Terminologie (înlocuieşte STAS 7009-64)

8530/1-70 Coordonarea modulară în construcţii. Terminologie (înlocuieşte STAS 6538-62)

8530/2-76 Coordonarea modulară în construcţii. Principii şi reguli de proiectare (înlocuieşte STAS 8530/2, 4-70)

8530/3-70 Coordenarea modulară în construcţii. Multimoduli şi dimensiuni modulare.

4582-70 Coordenarea modulară în construcţii. Goluri pentru uşi şi ferestre. Condiţii generale (înlocuieşte STAS 4582-56)

1686-70 Coordenarea modulară în construcţii. Deschideri, travei şi înălţimi pentru hale industriale (înlocuieşte STAS 1686-52)

8226-68 Modularea construcţiilor. Goluri pentru uşile, porţile şi ferestrele clădirilor agrozootehnice.

4670-74 Modularea construcţiilor. Goluri pentru uşile şi ferestrele clădirilor de locuit şi social-culturale (înlocuieşte STAS 4670-66)

4671-74 Modularea construcţiilor. Goluri pentru uşile şi ferestrele clădirilor industriale (înlocuieşte STAS 1760-56 si STAS 4671-67)

10579-76 Rosturi la faţadele clădirilor executate cu panouri mari prefabricate. Terminologie şi clasificare.

5721-76 Spaţii minime pentru amplasarea mobilierului în clădiri de locuit. Dimensiuni (înlocuieşte STAS 5721-68)

8600-70 Toleranţe în construcţie. Sistem de toleranţe dimensionale.

10265-75 Toleranţe in construcţii. Calitatea suprafeţelor finisate. Termeni şi noţiuni de bază.

10265/1-76 Toleranţe in construcţii. Toleranţe la suprafeţele din beton aparent.

PART 6.7 U.S.S.R. (Union of Soviet Socialist Republics)

Gosudarstvennyj Komitet Standartov [GOST]
Soveta Ministrov S.S.S.R.
Leninsky Prospekt 9
Moskva 117049
USSR/CCCP

[Partial Information Source: NBS Collection of International/National Standards]

Printed in Russian with English subtitles

GOST 21778-76 **Система обеспечения геометрической точности в строительстве ОСНОВНЫЕ ПОЛОЖЕНИЯ**
(System of ensuring of geometrical accuracy in construction--Main Principles.) 10 pages [146 x 214 mm]

GOST 21779-76 **Система обеспечения геометрической точности в строительстве ТЕХНОЛОГИЧЕСКИЕ ДОПУСКИ ГЕОМЕТРИЧЕСКИХ ПАРАМЕТРОВ**
(System of ensuring of geometrical accuracy in construction--Manufacturing and assembly tolerances of geometrical parameters.) 12 pages [146 x 214 mm]

GOST 21780-76 **Система обеспечения геометрической точности в строительстве ОБЩИЕ ПРАВИЛА РАСЧЕТА ТОЧНОСТИ**
(System of ensuring of geometrical accuracy in construction--Common principles of inaccuracy calculation.) 10 pages [146 x 214 mm]

Note: The modular system for the co-ordination of dimensions in building is mandatory in the USSR. It is governed by the *Construction Norms and Regulations* approved by the State Construction Committee of the USSR, which have the force of law. The relevant chapters of the *Construction Norms and Regulations* in force are the following:

II-A.4-62 "The unified modular system in the building industry. Basic rules of design;"

I-A.3-62 "Application of the unified modular system to the dimensioning of prefabricated structural components and products."

[Extract from: "Dimensional coordination in building--Current trends and policies in ECE countries," page 32, United Nations publication ECE/HBP/6, New York, 1974.]

PART 6.8 YUGOSLAVIA

Jugoslovenski zavod za Standardizaciju [JZS]
Slobodada Peneziča-Krcuna br. 35
Pošt. Pregr. 933
11000 Beograd
Yugoslavia

[Information Source: 1976 JUS Katalog jugoslovenskih standarda and 1977 dodatak katalogu jugoslavenskih standarda 1976

U.A9.001-1957 Jedinstvena modularna koordinacija u zgradarstvu

U.A9.004-1967 Spratna visina stambenih zgrada

PART 7: OTHER COUNTRIES

PART 7.1 IRAQ

Iraqi Organization for Standards [IOS]
Planning Board
P.O. Box 11185
Baghdad
Iraq

[Information Source: Yearbook of Iraqi Standards 1978, IOS Technical Service Department (issued in English)

Iraqi standards are issued in

IOS 766 - 1977 Modular coordination--Vocabulary

IOS 767 - 1977 Modular coordination--Basic module

IOS 768 - 1977 Modular coordination--Coordination for door sets--External and internal

PART 7.2 ISRAEL

Standards Institution of Israel [SII]
42, University Street
Tel Aviv
Israel

[Information Source:
NBS Collection of International/National Standards

Original standards are issued in Hebrew; but English translations are available, marked "Translation without guaratee--Only the Original Standard in Hebrew is authentic."

S.I. 617 - 1966 MODULAR COORDINATION IN BUILDING

Amended: April 1973

S.I. 617.1 - 1974 MODULAR CO-ORDINATION: VERTICAL DIMENSIONS IN NORMAL STOREYS OF HIGH AND MULTISTOREY BUILDINGS

S.I. 617.2 - 1974 MODULAR CO-ORDINATION: POSITIONING OF BUILDING PARTS AND COMPONENTS: RULES FOR PLANNING WALLS, FLOORS AND PARTITIONS

S.I. 617.3 - 1974 MODULAR CO-ORDINATION: ONE-, TWO-, AND THREE-FLIGHT STAIRCASES: DIMENSIONS

S.I. 617.4 - 1974 MODULAR CO-ORDINATION: PRECAST CONCRETE FLOOR SLAB COMPONENTS: DIMENSIONS

S.I. 617.5 - 1974 MODULAR CO-ORDINATION: PRECAST CONCRETE INTERIOR BEARING WALL COMPONENTS: DIMENSIONS.

S.I. 789.1 - 1970 TOLERANCES IN CONSTRUCTION WORKS: PRINCIPLES

PART 7.3 JAPAN

Japanese Industrial Standards Committee [JISC]
Ministry of International Trade and Industry
1-3-1, Kasumigaseki, Chiyodaku
Tokyo
Japan

[Information Source: JIS Yearbook 1978 (English Edition); and,
NBS Collection of International/National Standards]

Japanese standards are issued in Japanese with English subtitles. A considerable number also have translated versions in English, denoted by [E].

Japanese Industrial Standards

JIS A 0001-1963 Building Module [E]

JIS A 0002-1966 Glossary of Terms Used in Building Module

JIS A 0003-1963 Basic Tolerances for Building Components [E]

JIS A 0004-1964 Principles of Modular Co-ordination in Buildings

JIS A 0005-1966 Standard Nominal Size of Opening Components for Buildings

JIS A 0006-1966 Standard Size of Boards for Buildings

JIS A 0007-1967 Standard Nominal Size of Steel Framed Wall Components for Buildings

JIS A 0008-1967 Standard Nominal Size of Steel Framed Roof Components for Buildings

JIS A 0009-1970 Nominal Dimension of Movable Partition Components for Buildings

JIS A 0012-1976 Modular Co-ordinating Sizes of Sanitary Units for Dwellings

JIS A 0013-1976 Modular Co-ordinating Sizes of Kitchen Units for Dwellings

JIS A 0014-1976 Modular Co-ordinating Sizes of Air Conditioning Unit for Dwellings

JIS A 0015-1976 Modular Co-ordinating Sizes of Piping Unit for Dwellings

Other standards which include references to modular building components:

JIS A 5209-1967 Clay Tiles [E]

JIS A 5304-1967 Sidewalk Concrete Flags [E]

JIS A 5406-1972 Hollow Concrete Blocks [E]

JIS A 5414-1967 Pulp Cement Boards [E]

JIS A 5415-1971 Terrazzo Tiles [E]

JIS A 5705-1966 PVC Floor Tile [E]

JIS A 6503-1975 Building Components (Steel Panel for Wall) [E]

JIS A 6507-1975 Building Components (Steel Panel for Floor) [E]

JIS A 6508-1975 Building Components (Concrete Panel for Roof) [E]

JIS A 6510-1975 Building Components (Steel Panel for Roof) [E]

PART 7.4 Republic of KOREA

Korean Bureau of Standards [KBS]
Industrial Advancement Administration
Yongdeungpo-Dong
Yongdeungpo-Ku
Seoul
Republic of Korea

[Information Source: List of Korean Industrial Standards KS 1974
Korean Standards Association; and,
NBS Collection of International/National Standards]

Korean standards are issued in Korean, with English subtitles. English translations exist for some Korean standards. [Paper size: 190 x 260 mm; variable]

F 1503 - 1973 Principle of Modular Coordination in Buildings (9 pages)

F 1505 - 1971 Basic Tolerances for Building Components (2 pages) [E]

F 1506 - 1971 Dimensions of Elevator and Passage (13 pages)

F 1508 - 1971 Terminology for Modular Co-ordination in Building (3 pages)

F 1509 - 1971 Dimensioning of Modular Components for Building (4 pages)

F 1510 - 1971 Basic Module for Modular Co-ordination in Building (1 page)

F 1511 - 1971 Preferred Horizontal Dimensions in Building (2 pages)

F 1512 - 1971 Multimodule for Modular Co-ordination in Building (2 pages)

F 1513 - 1973 Standard Nominal Dimension of Wall Components for Building (4 pages)

F 1514 - 1973 Standard Nominal Dimension of Floor Components for Building (2 pages)

F 1515 - 1973 Standard Nominal Dimension of Wall Opening for Window and Door Components (5 pages)

F 1516 - 1973 Standard Nominal Size of Opening Components for Buildings (9 pages)

F 1517 - 1973 Nominal Dimension of Movable Partition Components for Buildings (12 pages)

F 1518 - 1973 Standard Size of Boards for Buildings (2 pages)

PART 7.5 TAIWAN

National Bureau of Standards
Ministry of Economic Affairs
Sung Chiang Road
Taipei

[Information Source: Chinese National Standards Catalogue 1978; and, NBS Collection of International/National Standards]

Taiwan standards are issued in Chinese with English subtitles.

CNS 2927 [A1010-11,1968] Revised 1973 — Basis for Coordination of Dimensions of Building Materials with Equipment

CNS 3537 [A1012-11,1973] — Module Rules for Buildings (Planning Modules) (1 page A4)

CNS 3538 [A1013-2, 1975] — Preferred Horizontal Dimensions for Industrial Buildings (5 pages A4)

CNS 3539 [A1014-2, 1975] — General Rules for Buildings (Application of Tolerances) (6 pages A4)

CNS 4112 [A1015-3, 1978] — Building Module (2 pages A4)

CNS 4113 [A1016-6, 1977] — Glossary of Terms Used in Building Module (3 pages A4)

CNS 4114 [A1017-6, 1977] — Basic Tolerances for Building Components (2 pages A4)

CNS 4115 [A1018-3, 1978] — Principle of Modular Coordination in Buildings (5 pages A4)

CNS 4347 [A1019-5, 1978] — Standard Nominal Size of Opening Components for Buildings (9 pages A4)

CNS 4348 [A1020-5, 1978] — Standard Size of Boards for Buildings (2 pages A4)

Standards which include modular building components or materials:

CNS 3092 [A2044-12,1975] — Aluminium Windows (Single and Double Sliding) (4 pages A4)

CNS 3802 [A2048-8, 1975] — Pulp Cement Board (2 pages A4)

CNS 3803 [A2049-9, 1975] — Terrazzo Tiles (2 pages A4)

PART 7.6 THAILAND

Thai Industrial Standards Institute [TISI]
Department of Science
Ministry of Industry
Rama VI Street
Bangkok 4
Thailand

[Information Sources: Thai Standards 1976 Catalogue; and,
NBS Collection of International/National Standards.]

Thai Industrial Standards are issued in the Thai language. Standards marked with an asterisk (*) are available translated into English.

The following Thai standards include modular and preferred dimensions of building products:

TIS 12-1971* Specification for asbestos-cement flat sheets (22 pages A5)

TIS 18-1971* Standard for asbestos-cement corrugated sheets [Amendment No.1, December 1974] (pages A5)

TIS 36-1973* Standard for wall tile (20 pages A5)

TIS 37-1973* Standard for floor tile (20 pages A5)

TIS 38-1973* Standard for mosaic tile (14 pages A5)

TIS 57-1973* Standard for solid load-bearing concrete masonry units (16 pages A5)

TIS 58-1973* Standard for hollow non-load-bearing concrete masonry units (14 pages A5)

TIS 59-1973* Standard for concrete building brick (14 pages A5)

TIS 77-1974 Standard for building bricks (15 pages A5)

TIS 79-1974 Standard for asbestos-cement asymmetrical section corrugated sheet (20 pages A5)

TIS 102-1974 Standard for structural clay load-bearing tile (11 pages A5)

TIS 103-1974 Standard for structural clay non-load-bearing tile (7 pages A5)

TIS 134-1975 Standard for mosaic parquet panels (15 pages A5)

The following documents were issued before 1970 in Thai and English by the Centre for Thai National Standard Specifications, Applied Scientific Research Corporation of Thailand, 196 Phahonyothin Road, Bang Khen, Bangkok 9, Thailand:

Thai National Standard Specification 1:2510 (1967) Dimensions of Common Clay Building Bricks (6 pages)
[Sizes based on the proposed ISO international basic module]

Thai National Standard Specification 6:2512 (1969) Modular Coordination in in Building--Basic Module (2 pages)

PART 8 UNITED STATES OF AMERICA [U.S.A.]

American National Standards Institute [ANSI]
1430 Broadway
New York, N.Y. 10018

Background

Work on American Standards for the coordination of dimensions of building materials and equipment--Project A62--commenced in 1939, under the auspices of the American Standards Association. In 1945, the first of a series of standards dealing with dimensional coordination in foot-inch units, was published: "American Standard Basis for the Coordination of Dimensions of Building Materials and Equipment," under the designation A62.1-1945 [Revised 1957].

Subsequently, the A62 series of standards was expanded to a total of 8 standards by 1971.

In 1974, the work on standards for the coordination of dimensions in building was transferred to the American Society for Testing and Materials [ASTM], and a new Subcommittee E-6.62, Coordination of Dimensions for Building Materials and Systems, was formed within the main Committee E-6, Performance of Building Constructions, to continue the development of standards for dimensional coordination.

One standard has been issued under the jurisdiction of ASTM Committee E-6, designated ANSI/ASTM E 577 - 76 (Published January 1977), "Standard for Dimensional Coordination of Rectilinear Building Parts and Systems." This standard introduces the concept of a basic incremental dimension, U, to be applied as a standard increment and as spacing in the standard grid. In the standard, U is assigned the value 4 in. in U.S. customary units, and 100 mm in SI units. Preferences are expressed in terms of U only.

Standards on Dimensional Coordination in Building [U.S. customary units]:

A62.1-1957 American Standard Basis for the Coordination of Dimensions of Building Materials and Equipment [Revision of A62.1-1945] (6 pages AQ)

A62.2-1945 American Standard Basis for the Coordination of Masonry (6 pages AQ)

A62.3-1946 American Standard Sizes of Clay and Concrete Modular Masonry Units (14 pages AQ)

A62.4-1947 American Standard Sizes of Clay Flue Linings (8 pages AQ)

A62.5-1968 USA Standard Basis for the Horizontal Dimensioning of Coordinated Building Components and Systems (9 pages AQ)

A62.6-1969 American National Standard Classification for Properties and Performances of Coordinated Building Components and Systems (12 pages AQ)

A62.7-1969 American National Standard Basis for the Vertical Dimensioning of Coordinated Building Components and Systems (12 pages AQ)

A62.8-1971 American National Standard Numerical Designation of Modular Grid Coordinates (14 pages AQ)

PART 8 UNITED STATES OF AMERICA [Continued]

American Society for Testing and Materials [ASTM]
1916 Race Street
Philadelphia, Pa. 19103

Hybrid Standard for Use with U.S. Customary or Metric (SI) Units:

ANSI/ASTM E 577 - 76 Standard for Dimensional Coordination of Rectilinear Building Parts and Systems (4 pages, 152 x 228 mm)

PART 9 INTERNATIONAL (ISO) STANDARDS AND NATIONAL STANDARDS: VOTING BY NATIONAL MEMBER BODIES, DEGREE OF ADOPTION OF ISO STANDARDS, AND REFERENCING OF ISO STANDARDS.

General

This Part addresses the impact of international standards and recommendations on national standards dealing with modular or dimensional coordination and associated subjects. A matrix has been designed to show, in graphic form, the voting results of member bodies on the 15 main ISO standards in this subject area; the degree of adoption or concurrence of ISO standards in national standards; and, the degree of referencing of ISO standards in national standards published subsequent to their issue.

Voting on ISO Standards

The Foreword to each ISO standard provides a listing of approvals, or disapprovals on technical grounds, by voting member nations on the standard or recommendation(s) on which the standard is based. [In the case of ISO standard 1040-1973, two previous recommendations, R 1040/I-1969 and R 1040/II-1970, were combined].

The matrix in Figure 9.1 indicates that a total of 44 member nations recorded a vote on one or more of the 15 ISO standards listed, with 7 nations voting on all. Approvals are indicated by a lowercase a in the first column of the appropriate box in the matrix; similarly, disapproval on technical grounds is indicated by a lowercase d. The following listing gives a tally of voting by all countries:

Australia:	8 a	Greece:	3 a	Peru:	5 a
Austria:	13 a, 1 d	Hungary:	14 a	Poland:	10 a
Belgium:	10 a, 5 d	India:	11 a	Portugal:	7 a
Brazil:	9 a	Iran:	9 a	Romania:	13 a
Bulgaria:	2 a	Ireland:	5 a, 1 d	South Africa:	13 a
Canada:	9 a, 2 d	Israel:	14 a	Spain:	14 a
Chile:	3 a	Italy:	13 a	Sweden:	14 a, 1 d
Cuba:	3 a	Japan:	4 a, 1 d	Switzerland:	12 a, 3 d
Czechoslowakia:	2 a	Korea, DPR:	2 a	Thailand:	9 a
Denmark:	14 a, 1 d	Korea, Rep.:	9 a	Turkey:	14 a
Egypt:	11 a	Mexico:	4 a	United Kingdom:	10 a, 5 d
Ethiopia:	1 a	Netherlands:	12 a, 3 d	U.S.A.:	4 a, 1 d
Finland:	9 a, 5 d	New Zealand:	6 a, 2 d	U.S.S.R.:	9 a, 2 d
France:	12 a, 3 d	Norway:	14 a	Yugoslavia:	5 a
Germany:	12 a, 3 d	Pakistan:	1 a	Total:	366 a, 41 d

Although a national member body of ISO may have registered a vote on a particular ISO standard, this does not mean that this standard has been or will be adopted in full or in part at the national level, or will even be considered for adoption. However, it generally indicates that the responsible national standards committee has examined the contents of the ISO document and expressed a judgment as to the acceptability of that contents. In a number of instances, national standards predate the corresponding ISO documents and, therefore, may or may not be in conflict with the ISO recommendations.

In time, and with revisions of national standards on modular or dimensional coordination and associated subjects, or new work, a wider acceptance of the ISO concepts, format, and technical contents can be exptected.

Adoption of ISO Standards and Recommendations, Concurrence, and Referencing

In national standards that have been issued since the publication of corresponding ISO standards, it is possible to assess the degree of adoption of ISO recommendations. This may range from negligible in some instances, to partial or substantial in most instances, to complete adoption in some cases; for example in Cyprus national standards.

The matrix in Figure 9.1 has been designed to indicate, by means of a critical judgment at the national standards level--through an appropriate questionnaire--the degree of adoption of ISO standards, or concurrence with such standards where national standards predate ISO documents. The following key is used in the second column of the appropriate box in the matrix:

A = Complete adoption of ISO standard in national standard(s)

B = Substantial adoption of ISO standard in national standard(s), with some addition or deletion of material

C = Partial adoption of ISO standard in national standard(s) with considerable addition of material

D = National standard(s) do not reference ISO standard, but are NOT in conflict

E = National standard(s) are in conflict with ISO standard or recommendation.

Where an ISO standard is referenced in the text or the explanations to a national standard or group of national standards on the same subject, this is indicated by means of a capital R in the third column of the appropriate box in the matrix.

R = ISO standard is referenced or mentioned in national standard(s)

MATRIX SHOWING THE VOTING BY MEMBER BODIES ON ISO STANDARDS, THE EXTENT OF CONCURRENCE WITH OR ADOPTION OF ISO STANDARDS, AND THE REFERENCING OF ISO STANDARDS IN NATIONAL STANDARDS.

	ISO STANDARDS AND RECOMMENDATIONS														
	1006	1040[1]	1789	R 1790	1791	2776	2777	2848	3055	3571/1	3881	5731	5732	1803	2444
Albania [BSA]															
Algeria [INAPI]															
Australia [SAA]	D	a D	D	a D	D	a D	a D	a D	B R			a D	a	a	
Austria [ÖN]	a	aa	a	a		a	a	a	a	a	a	d	a	a	a
Bangladesh [BDSI]															
Belgium [IBN]	a	aa	a	a	a	a	a	d	d	a	a	d	d	a	d
Brazil [ABNT]		a	a	a	a					a		a	a	a	a
Bulgaria [DKC]									a			a			
Canada [SCC]	a D	a				a	a	a B R	d	d	a	a	a	B R	a
Chile [INN]	a	a					a								
China, P.R.															
Colombia [ICONTEC]															
Cuba [NC]	a	a									a				
Cyprus [CYS]	A R							A R							
Czechoslowakia [CSN]						a						a			
Denmark [DS]	a B	aa C	a C	a C	a C	a C	a	a C	a C	a B	a C	d	a	a C	a
Egypt [EOS]		a	a	a	a	a	a	a	a		a			a	a
Ethiopia [ESI]										a					
Finland [SFS	a	da	a	d	d	a	a	a	d	d	a		a	a	a
France [AFNOR]	a	aa	a	a	a	d	d	a	a	a	a	a	a	a	d
Germany, F.R. [DIN]	a	dd	d	d	a	a	a	a	a	a	a	a	a	a	a
Ghana [GSB]															
Greece [ELOT]	a	a												a	
Hungary [MSZH]	a	aa	a	a	a	a	a	a	a		a	a	a	a	a
India [ISI]	a	aa	a	a	a	a	a	a	a	a				a	a
Indonesia [YDNI]															
Iran [ISIRI]	a	aa	a	a	a						a	a	a	a	
Iraq [IOS]															
Ireland [IIRS]						a	a	a	a	d					a
Israel [SII]	a	aa	a	a	a		a	a	a	a	a	a	a	a	a
Italy [UNI]	a	aa	a	a	a	a		a	a	a		a	a	a	a
Ivory Coast [BIN]															
Jamaica [JBS]															
Japan [JISC]								a	d	a	a		a		
Kenya [KEBS]															
Korea, D.P.R. [CSK]	a	a													
Korea, Rep.[KBS]	a	a	a	a	a						a	a	a	a	
Lebanon [LIBNOR]															
Libyan Arab Jamahiriya															
Malaysia [SIRIM]															
Mexico [DGN]									a		a	a	a		
Morocco [SNIMA]															
Netherlands [NNI]	a B R	aa C R	a	a C R	a R	d	d	a C R	a	a	a	a	d	a	a
New Zealand [SANZ]					a	a		a	d	a		a	a		d
Nigeria [NSO]															
Norway [NSF]	a	aa	a	a	a	a	a	a	a	a	a		a	a	a
Pakistan [PSI]									a						
Peru [ITINTEC]		a	a	a	a									a	
Philippines [PS]															
Poland [PKNiM]	a	a			a	a	a		a	a		a	a	a	
Portugal [DGQ]		a	a	a	a	a				a				a	
Romania [IRS]	a	aa	a	a	a	a	a	a	a			a	a	a	a
Saudi Arabia [SASO]															
Singapore [SISIR]															
South Africa [SABS]	a	aa	a	a	a	a	a	a	a		a	a		a	a
Spain [IRANOR]	a	aa	a	a	a	a	a		a	a	a	a	a	a	a
Sri Lanka [BCS]															
Sudan [SSD]															
Sweden [SIS]	a	aa	a	d	a	a	a	a	a	a	a	a	a	a	a
Switzerland [SNV]	a	aa	a	a	a	a	a	a	d	a	a	d	d	a	a
Thailand [TISI]	a	aa	a	a	a	a	a	a	a						
Turkey [TSE]	a	aa	a	a	a	a	a	a	a		a	a	a	a	a
United Kingdom [BSI]	d	dd	a	a	a	a	a	a	d	a	a	a	d	a	d
U.S.A. [ANSI]		a	a	d	a									a	
U.S.S.R. [GOST]		a	a	a	a	a	a	a		d	d	a	a		
Venezuela [COVENIN]															
Viet Nam, S.R. [TCVN]															
Yugoslavia [JZS]	a	a							a	a	a				

[1]ISO standard 1040-1973 replaces two prior recommendations subject to separate voting.

Key to Matrix:

First Column:
- a = approval of ISO standard by national member body
- d = disapproval of ISO standard on technical grounds by national member body

Second Column:
- A = complete adoption of ISO standard as national standard
- B = substantial adoption of ISO standard in national standard(s), with some addition or deletion of material
- C = partial adoption of ISO standard with considerable addition of material
- D = national standard(s) do not reference ISO standard but are NOT in conflict
- E = national standard(s) are in conflict with ISO standard or recommendation

Third Column:
- R = ISO standard is referenced in national standard(s)

A blank space in the matrix indicates either the absence of information or the absence of a national standard on the subject. It is expected that the matrix will be filled in to a much greater extent after national standards organizations have had an opportunity to comment on the document. An earlier version of the matrix was made available to a selection of standards bodies and the entries shown for Denmark and the Netherlands reflect replies received from the Dansk Standardiseringsråd and the Nederlands Normalisatie Instituut in January 1979. Information given for a sample of other countries is based on the perusal of their national standards and unofficial value judgments.

PART 10 VOCABULARY

At the international level, the International Organization for Standardization [ISO] has issued three international standards that provide a modular vocabulary in English and French:

ISO 1791-December 1973	Modular co-ordination--Vocabulary Coordination modulaire--Vocabulaire
ISO 1803-November 1973	Tolerances for Building--Vocabulary Tolérances pour le bâtiment--Vocabulaire
ISO 2444-November 1974	Joints in building--Vocabulary (Joints dans le batiment--Vocabulaire)

The unification and harmonization of terminology, through agreed vocabularies, is a major step in the wider international application and compatibility of modular coordination. At this stage, English, French, and Russian are the three official ISO languages, although few ISO standards are as yet printed in Russian. The listing in Appendix 3 shows the languages in which national standards of different nations are issued, indicating that apart from English and French a number of other European languages are used in more than one country; for example, Spanish, Portuguese, German and Italian.

To facilitate the reference of national standards, ISO has recommended that English (and/or French) subtitles be shown in standards issued in other languages. This practice is gaining wider acceptance and will assist in much greater dissemination of technical information. Under the provisions of ISONET, an international standards information system set up by ISO, member nations will provide a list of all national standards, preferably in English and French.

In the dissemination of standards dealing with modular coordination and associated subjects in building, a number of trends have been discerned which will assist in better exchanges of information on that subject.

Some countries, such as Denmark, Sweden, Germany, Israel, and Japan, to name a few, provide informal or authorized English translations of some of their standards on modular coordination. This practice is particularly useful, where the national language uses symbols or alphabets other than the Roman alphabet.

Countries that issue national standards in more than one language--for example, Belgium, Canada, South Africa, or Switzerland--thereby facilitate the wider understanding of these documents.

A number of countries have issued national standards which set down terms used in modular coordination in several languages. Such documents could provide an excellent starting point for a multi-lingual vocabulary dealing with modular coordination in building.

The following multi-national or national standards deserve particular mention:

1. Modular Coordination in Building. Vocabulary [Nordic Countries]

   A cooperative effort by four Scandinavian countries to issue a common vocabulary in Danish, Finnish, Norwegian, Swedish, English and French, based upon ISO 1791-1973, with the deletion of some terms and the attachment of ISO 1791 in its entirety as an appendix.

   The Danish, Norwegian and Swedish versions are in accord, and the Finnish version is generally in agreement.

   The national standards and their titles are:

   Denmark: DS 1010.1-1975, Modulkoordinering for byggeriet. Terminologi

   Finland: SFS 3501-1975, Moduulijärjestely. Käsitteistö. Pohjoismainen

   Norway: NS 1000

   Sweden: SIS 05 01 00-1975, Modulkoordinering. Terminologi

2. Modular Coordination in Building. Terminology [Netherlands]

   Although dating from the pre-ISO standards era, and largely superseded by NEN 2880 and 2881, the Nederlands Norms (Netherlands Standards) NEN 5701-1974 and 5702-1965 contain a multi-lingual word list of terms in Dutch, English, French and German for terms used in modular coordination and tolerances in building.

   The national standards and their titles are:

   NEN 5701-1964, Modulaire coördinatie bij het bouwen. Terminologie

   NEN 5702-1965, Modulaire coördinatie bij het bouwen. Tolerantiestelsel. Begripsbepalingen.

3. Modular Coordination in Building. Terms and Definitions [Germany]

   DIN 18 000 Teil 2, Modulordnung im Bauwesen--Begriffe, March 1976

   The standard contains terms in German, English and French for 11 of the terms given in ISO 1791-1973, as well as definitions and illustrations for these terms.

4. Modular Coordination in Building. Glossary [Greece]

   Although an early modular coordination document, Greek national standard ENO P 01-001-1959, consists entirely of a multi-lingual vocabulary of terms used in modular coordination, showing these terms in French, English, German, Italian, and Greek. Only the Greek terms are shown in the Greek alphabet so that the list provides an excellent cross-reference.

5. Terminology: Dimensional Coordinations, Modular Coordination

Terminology: Measurements, Tolerances, Fits [Switzerland]

SNV 501 501 - 1969, Terminologie: Massordnungen, Modul-Ordnung
Terminologie: Coordinations dimensionelles, Coordination modulaire
Terminologia: Coordinazioni dimensionali, Coordinazione modulare

SNV 502 502 - 1969, Terminologie: Massbezeichnungen, Toleranzen, Passungen
Terminologie: Cotes, tolérances, ajustements
Terminologia: Misure, Tolleranze, accoppiamenti

These tri-lingual standards contain illustrated glossaries of terms used in dimensional and modular coordination, tolerances and fits, in German, French and Italian, as well as English translations of these terms, and a bibliography on the subject matter covered.

Appendix 4 has been developed to list the principal terms used in modular coordination in building, including joints and tolerances, in the major languages, with the object to simplify the technical interpretaion of terms and illustrations in the standards of different nations. Appendixes 4.1, 4.2, and 4.3 list 14 selected terms from ISO 1791 - 1973, "Modular Coordination--Vocabulary," and Appendix 4.4 lists 6 selected terms from ISO 1803 - 1973, "Tolerances for Building--Vocabulary."

APPENDIX 1

TECHNICAL COMMITTEE 59, BUILDING CONSTRUCTION, SUBCOMMITTEES AND WORKING GROUPS

(Extract from ISO Memento 1978, p. 50)

REF.	TITLE AND SCOPE	SECRETARIAT
TC 59 *(created 1947)*	**Building construction**	**AFNOR**
Chairman : *Mr. G. Blachère* *France* *(1980)*	Standardization of : 1. Terminology in the construction and civil engineering industry. 2. General geometric requirements for buildings, building elements, components and products, including modular co-ordination and its basic principles, joints, tolerances and fits. 3. Other general performance requirements for buildings and building elements (user needs) including the co-ordination of these with performance requirements of building components and products to be used in the construction and civil engineering industry. Are excluded : – Bases for design of structures (TC 98) – Particular geometric requirements and performance requirements of building components and products which are in the scope of separate ISO technical committees.	
WG 1	Physically handicapped	SIS
SC 1	Dimensional co-ordination	SIS
WG 1	Preferred sizes	DS
WG 2	Multimodules	GOST
WG 3	Sub-modules	BSI
WG 4	Location of fixings	AFNOR
SC 2	Terminology, symbols and unification of language	AFNOR
WG 1	Terminology	NSF
WG 2	Co-ordination and harmonization of the definitions	DIN
SC 3	Functional/user requirements and performance in building construction	BSI
WG 1	User's requirements	IBN
WG 2	Expression of climatic data for building design	BSI
SC 4	Limits and fits in building construction	DS
WG 1	Tolerances in building. General principles	BSI
WG 2	Measurement procedures in building	SIS
WG 3	Classes of tolerances for the building industry	DIN
WG 4	Inspection of tolerances in building	DIN
SC 5	Joints	AFNOR
SC 6	Structures, external envelopes, internal subdivisions	DIN
WG 1	Pre-fabricated components for floors and roofs, structural framing components and vertical loadbearing components	GOST
WG 3	Curtain walling and panels and vertical non-loadbearing components	AFNOR
WG 4	Stairs and stair openings	SIS
WG 7	Coverings	AFNOR
WG 8	Floor and wall finishes	AFNOR
WG 9	Ceiling components	AFNOR
SC 7	Equipment, services and drainage	AFNOR
WG 2	Bathrooms and toilets	AFNOR
WG 4	Accommodation ducts	BSI
SC 8	Jointing products	DIN
SC 11	Kitchen equipment	SIS
WG 1	Test methods and performance requirements	BSI
WG 2	Service zones	BSI
WG 3	Activity spaces	SIS
SC 12	Mechanical transporting systems	AFNOR
WG 1	Lifts on board ships	DS
WG 2	Guide rails for lifts	—

APPENDIX 2

PARTICIPATION BY MEMBER NATIONS IN ISO TECHNICAL DIVISION [TD] 3, BUILDING, and TECHNICAL COMMITTEE [TC] 59, BUILDING CONSTRUCTION

ISO TECHNICAL DIVISION 3 [BUILDING]

Active Participartion 25 nations

Australia
Austria
Belgium
Brazil
Canada

Czechoslowakia
Denmark
Finland
France
Germany

Greece
Hungary
India
Iran
Italy

Japan
Netherlands
Norway
Poland
Romania

Spain
Sweden
United Kingdom
U.S.A.
U.S.S.R.

To be kept informed of the progress of the work 12 nations

Chile
Cuba
Ireland
Israel
Korea, D.P.R.

New Zealand
Peru
Portugal
South Africa
Switzerland

Thailand
Yugoslavia

ISO TECHNICAL COMMITTEE 59 [BUILDING CONSTRUCTION]

Active Participation 30 nations

Australia
Austria
Belgium
Brazil
Bulgaria

Canada
Czechoslowakia
Denmark
Ethiopia
Finland

France [Secret.]
Germany
Hungary
India
Iran

Israel
Italy
Japan
Korea, Rep. of
Netherlands

Norway
Poland
Romania
South Africa
Spain

Sweden
Switzerland
Thailand
United Kingdom
U.S.S.R.

To be kept informed of the progress of the work 23 nations

Chile
Colombia
Cuba
Egypt, Arab Rep.
Ghana

Greece
Indonesia
Iraq
Ireland
Ivory Coast

Korea, D.P.R.
Lebanon
Mexico
New Zealand
Pakistan

Peru
Portugal
Sri Lanka
Turkey
U.S.A.

Venezuela
Viet Nam, S.R.
Yugoslavia

Source: ISO document--Participation in ISO Committees (September 1978)

Appendix 3

LANGUAGES OF ISSUE FOR INTERNATIONAL, REGIONAL, AND NATIONAL STANDARDS

[Notes: 1. This listing is based on available information and may require some revision after replies from national standards bodies are received.

2. Because English, French, and Spanish are used in the standards of a large number of countries, they are shown as separate groups.

3. Where national standards are issued in more than one language, a symbol designating alternative languages is included in parentheses.

4. Where all or some modular coordination standards are available as English translations, this is indicated by the symbol (e).

A. Standards issued in English (27 countries)

ISO STANDARDS

Australia
Bangladesh
Barbados
Canada (Fr)
Cyprus
Ghana
Hong Kong
India
Ireland
Jamaica
Kenya
Liberia
Malawi
Malaysia
Mauritius
New Zealand
Nigeria
Pakistan
Phillipines
Singapore
South Africa (Af)
Sri Lanka
Trinidad & Tobago
United Kingdom
U.S.A.
Zambia
Zimbabwe/Rhodesia

B. Standards issued in French (10)

ISO STANDARDS

Algeria
Belgium (Flem)
Cameroon
Canada (En)
France
Ivory Coast
Madagascar
Morocco
Switzerland (Ger, It)
Tunisia

C. Standards issued in Spanish (12)

COPANT Standards
ICAITI Standards

Argentina
Bolivia
Chile
Colombia
Cuba
Ecuador
Mexico
Paraguay
Peru
Spain
Uruguay
Venezuela

D. Standards issued in other languages

D.1.: German (4)

Austria
Germany, F.R.
Germany, D.D.R.
Switzerland (Fr, It)

D.2.: Italian (2)

Italy
Switzerland (Fr, Ger)

D.3.: Portuguese (2)

Brazil
Portugal

D.4.: Other Western European Languages

Denmark (e)
Finland
Greece
Iceland
Netherlands
Norway
Sweden (e)
Turkey

D.5 Eastern European Languages

Albania
Bulgaria
Czechoslowakia
Hungary
Poland
Romania
U.S.S.R.
Yugoslavia

D.6.: Non-European languages used in national standards

China, P.R.	Korea, Rep. (e)
Egypt	Kuwait
Ethiopia	Lebanon
Indonesia	Libyan Arab Rep.
Iran	Oman
Iraq	Sudan
Israel (e)	Syria
Japan	Taiwan
Jordan	Thailand
Korea, D.P.R.	Viet Nam, S.R.

No information was available for the following nations, which are not listed as members of ISO:

Afghanistan, Burma, Cambodia, Laos, Nepal, Saudi Arabia, Yemen

Appendix 4.1

MULTI-LINGUAL VOCABULARY OF THE PRINCIPAL TERMS USED IN STANDARDS FOR MODULAR COORDINATION IN BUILDING, INCLUDING JOINTS AND TOLERANCES.

Number references at top of column indicate the relevant ISO standard and section.

Part 1: Languages using the Roman alphabet (*Official ISO languages)

	ISO 1791 - 2.2	ISO 1791 - 2.1	ISO 1791 - 2.8	ISO 1791 - 2.9	[2.9]
ENGLISH*	MODULAR COORDINATION	DIMENSIONAL COORDINATION	BASIC MODULE	MULTIMODULE	SUBMODULE
FRENCH*	coordination modulaire	coordination dimensionelle	module de base	multimodule	sous-module
Albanian					
Czech	modulová koordinace				
Danish	modulkoordinering (modulordning)	målkkordinering	basismodul (byggemodul)	multimodul	
Dutch[1]	modulaire coördinatie	coördinatie van afmetingen (maatafstemming)	basismoduul	multimoduul	submoduul (ondermoduul)
Finnish	moduulijärjestely		kantamoduuli	kertomoduuli	
German	Modulordnung (Modularkoordination)		Grundmodul	Multimodul	Submodul
Hungarian	modul-koordinálása				
Italian	coordinazione modulare	coordinazione dimensionale	modulo base	multimodulo	sottomodulo
Norwegian	modulkoordinering		basismodul	multimodul	
Polish	koordynacja modularnej				
Portuguese	coordenação modular				
Romanian	coordenarea modulară				
Serbo-Croatian	modularna koordinacija		osnovni modul		
Spanish	coordinación modular	coordinación dimensional	módulo normal		
Swedish	modulkoordinering		basmodul	multimodul	
Turkish	modüler koordinasyon		temel modül	büyük modüller	

[1] Flemish, used in Northern Belgium is similar to Dutch. Afrikaans, used in South Africa, is related to Dutch but has undergone considerable modifications.

Part 2: Languages using the Cyrillic or Greek alphabet (*Official ISO language)

RUSSIAN*	модульную координацию	Модульная и размерная координация		Мультимодуль	Подмодуль
Bulgarian	Модулна координация				
Greek	Συσχετισμένη τυποποίησις ἢ Ἀρθρωτὸς συσχετισμός	Διαστασιολογικὸς συσχετισμός	Βασικὸν μέτρον συσχετισμοῦ		

Note: The Cyrillic alphabet is used by Serbs and Montenegrins with the Serbo-Croatian language.

Part 3: Languages using other alphabets, letter or syllabic symbols and horizontal type

Arabic					
Chinese					
Hebrew					
Japanese					
Korean					
Thai					

Appendix 4.2

MULTI-LINGUAL VOCABULARY OF THE PRINCIPAL TERMS USED IN STANDARDS FOR MODULAR COORDINATION IN BUILDING, INCLUDING JOINTS AND TOLERANCES.

Number references at top of column indicate the relevant ISO standard and section.

Part 1: Languages using the Roman alphabet (*Official ISO languages)

	ISO 1791 - 2.10	ISO 1791 - 2.11	ISO 1791 - 2.13	ISO 1791 - 2.19
ENGLISH*	PLANNING MODULE	MODULAR SIZE	COORDINATING DIMENSION	REFERENCE SYSTEM
FRENCH*	module de projet	dimension modulaire	dimension de coordination	système de référence
Albanian				
Czech				
Danish	planlægningsmodul		koordineringsmål (tilslutningsmål)	referencesystem
Dutch[1]	ontwerpmoduul (stramienmaat)		coördinatiemaat	referentiestelsel
Finnish	suunnittelumoduuli		liittymismitta	viitejärjestelmä
German	Planungsmodul		Koordinationsmaß	Bezugssystem
Hungarian				
Italian				sistema di riferimento
Norwegian	planleggningsmodul		koordineringsmål	referansesystem
Polish				
Portuguese				
Romanian				
Serbo-Croatian				
Spanish				
Swedish	planläggningsmodul		koordineringsmått	referenssystem
Turkish				

[1] Flemish, used in Northern Belgium is similar to Dutch. Afrikaans, used in South Africa, is related to Dutch but has undergone considerable modifications.

Part 2: Languages using the Cyrillic or Greek alphabet (*Official ISO language)

RUSSIAN*				
Bulgarian				
Greek				Σύστημα ἀναφορᾶς

Note: The Cyrillic alphabet is used by Serbs and Montenegrins with the Serbo-Croatian language.

Part 3: Languages using other alphabets, letter or syllabic symbols and horizontal type

Arabic				
Chinese				
Hebrew				
Japanese				
Korean				
Thai				

Appendix 4.3

MULTI-LINGUAL VOCABULARY OF THE PRINCIPAL TERMS USED IN STANDARDS FOR MODULAR COORDINATION IN BUILDING, INCLUDING JOINTS AND TOLERANCES.

Number references at top of column indicate the relevant ISO standard and section.

Part 1: Languages using the Roman alphabet (*Official ISO languages)

	ISO 1791 - 2.20	ISO 1791 - 2.22	ISO 1791 - 2.24	ISO 1791 - 2.27	ISO 1791 - 2.28
ENGLISH*	MODULAR GRID	MODULAR PLANE	MODULAR LINE	CONTROLLING ZONE	NEUTRAL ZONE
FRENCH*	quadrillage modulaire	plan modulaire	ligne modulaire	zone clé	zone neutre
Albanian					
Czech					
Danish	modulnet	modulplan	modullinie		neutral zone
Dutch[1]	modulair rooster moduulrooster	modulair vlak	modulaire lijn		
Finnish	moduuliverkko				neutraalivyöhyke
German	Modularer Raster	Modulare Ebene	Modulare Linie		Neutrale Zone
Hungarian					
Italian	reticolo modulare	piano modulare	linea modulare		
Norwegian	modulnett	modulplan	modullinje		neutral sone
Polish					
Portuguese					
Romanian					
Serbo-Croatian					
Spanish					
Swedish	modulnät	modulplan	modullinje		neutral zon
Turkish					

[1] Flemish, used in Northern Belgium is similar to Dutch. Afrikaans, used in South Africa, is related to Dutch but has undergone considerable modifications.

Part 2: Languages using the Cyrillic or Greek alphabet (*Official ISO language)

RUSSIAN*					
Bulgarian					
Greek					

Note: The Cyrillic alphabet is used by Serbs and Montenegrins with the Serbo-Croatian language.

Part 3: Languages using other alphabets, letter or syllabic symbols and horizontal type

Arabic					
Chinese					
Hebrew					
Japanese					
Korean					
Thai					

Appendix 4.4

MULTI-LINGUAL VOCABULARY OF THE PRINCIPAL TERMS USED IN STANDARDS FOR MODULAR COORDINATION IN BUILDING, INCLUDING JOINTS AND TOLERANCES.

Number references at top of column indicate the relevant ISO standard and section.

Part 1: Languages using the Roman alphabet (*Official ISO languages)

	ISO 1803 - 3.2.1	ISO 1803- 3.2.2	ISO 1803 - 3.2.3	ISO 1803- 3.2.4	ISO 1803 - 3.4.2	ISO 1803 - 3.4.3
ENGLISH*	DIMENSION(S)	SIZE(S)	DEVIATION(S)	TOLERANCE(S)	JOINT(S)	CLEARANCE
FRENCH*	dimension	dimension	écart	tolérance	joint	jeu
Albanian						
Czech				tolerance		
Danish	mål	mål	afvigelse	tolerancer	fuge	
Dutch[1]	maat	maat	maatafwijking	tolerantie		
Finnish				toleranssit		
German	Abmessung(en)	Maß(e)	Abmaß(e)	Toleranz(en)	Fuge(n)	Spiel
Hungarian						
Italian	dimensione	misura	scostamento	tolleranza	giunto	gioco
Norwegian		mål		toleranser		
Polish						
Portuguese						
Romanian				toleranţe		
Serbo-Croatian				tolerancije		
Spanish				tolerancias		
Swedish	dimension	mått	avvikelse(r)	tolerans(er)	fog(ar)	
Turkish						

[1] Flemish, used in Northern Belgium is similar to Dutch. Afrikaans, used in South Africa, is related to Dutch but has undergone considerable modifications.

Part 2: Languages using the Cyrillic or Greek alphabet (*Official ISO language)

RUSSIAN*				Допуски	Стыки	
Bulgarian						
Greek	Διάστασις		Ἀπόκλισις	Ἀνοχή		Διάκενον (Τζόγος)

Note: The Cyrillic alphabet is used by Serbs and Montenegrins with the Serbo-Croatian language.

Part 3: Languages using other alphabets, letter or syllabic symbols and horizontal type

Arabic						
Chinese						
Hebrew						
Japanese						
Korean						
Thai						

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15. SUPPLEMENTARY NOTES

Prepared as part of a basic analysis of international precedent in dimensional/ modular coordination and impact on U.S. metric planning in the building industry.

☐ Document describes a computer program; SF-185, FIPS Software Summary, is attached.

16. ABSTRACT *(A 200-word or less factual summary of most significant information. If document includes a significant bibliography or literature survey, mention it here.)*

This Interim Report lists international, regional (multi-national), and national standards dealing with the principles and practical application of modular and dimensional coordination in building, including joints and tolerances.

The document shows the widespread adoption of the international building module (M), of 100 mm, as a basis for dimensional standardization in building design, production, and construction. The listing comprises a total of 26 international and regional standards (ISO, COPANT, ICAITI), and well over 500 foreign national standards. Where available, brief summaries of contents have been included, as well as titles or subtitles in English. Appendixes are included to illustrate international cooperation on the subject, and include a multi-lingual vocabulary for twenty of the key terms used in modular coordination.

The main purpose of the report is to assist the U.S. building and construction community with information on international precedent and thus facilitate decisionmaking relative to standards for dimensional (modular) coordination in building. The document may also aid exporters of building products and/or technical services.

The Interim Report will be submitted to foreign national standards bodies for review and amplification in those areas where incomplete information is available; and a revised version will be issued.

17. KEY WORDS *(six to twelve entries; alphabetical order; capitalize only the first letter of the first key word unless a proper name; separated by semicolons)*

Building module; dimensional coordination; metric design and construction; modular coordination; standards.

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